Revere "33"

STEREO guide

Introduction

Why should you choose a Revere 33 Stereo as your own personal camera? Every manufacturer will tell you that *his* model is the best, but it is the using of the camera that proves to you which one is the most adaptable for your purposes. Unfortunately, you cannot give every camera a trial run in order to arrive at a conclusion. Therefore you must determine your choice on the basis of the actual design features.

It is presumed that you have come to realize the magic of stereo photography—how it reproduces a picture with a startling reality of true-life images—how it outmodes the usual type of flat-plane photographs by duplicating the subject in its actual perspective—and how it gives you the sensation of *seeing the object* rather than its *picture.* You are "sold" on the idea of stereo, so you are buying, are about to buy, or have bought a Revere 33 Stereo. If you have been a careful investigator of all stereo camera characteristics, and have decided that the Revere meets all your requirements, then you will have been convinced that the following features outweighed those found in any other stereo camera:

1. The Revere has an automatic film wind and shutter cocking. This means that *you need never lose a picture* because you forgot to cock the shutter. So long as the film is wound in the Revere, the shutter is always automatically cocked and ready to take the picture.
2. A superimposed image rangefinder quickly and clearly shows the position of sharpest focus.
3. A focusing wheel is conveniently located for easy turning with the thumb. Its location eliminates the chance of accidental focusing-wheel travel into an out-of-focus position.
4. A double exposure is prevented by means of a coupling of the film wind and shutter cocking.
5. Intentional double exposures may be made when needed for trick effects.
6. Intentional separated exposures may be made for both hypo- (close-up) and hyper- (long distance) stereo.
7. Simplified loading assures the full number of exposures.
8. The camera is flash-synchronized for all flashlamps and flashtubes.

9. Convenient location of the rangefinder and viewfinder for use of rapid and easy shift.

10. The sharp-cutting Wollensak-Amaton lenses maintain their definition to the edges of the field.

11. The Rapax shutter allows speeds from 1/2 to 1/200 second.

12. The built-in bubble level is in an easy-to-see position in the viewfinder so that you may compose your picture and check its horizontal alignment at the same time.

13. The design of the camera and viewer put it in the class of artistic creations.

14. The viewer has large-size control buttons that permit rapid interpupillary adjustments and provide comfortable pressure maintenance in the "On" position.

You will be proud to own the Revere 33 Stereo because of its fine appearance. But more than that, you will find it a delight to operate because of the mechanical innovations that make it simple to use and which produce superb pictures with a minimum of effort. After using this camera, the words *stereo* and *Revere* will become synonymous in your photographic vocabulary.

Happy shooting!

KENNETH S. TYDINGS

1. Third Dimensional Photography

Stereo Gives Lifelike Pictures

If you are accustomed only to the usual two-dimension, flat-plane photograph, you are about to enjoy a new and unusual experience with your Revere 33 Stereo Camera. Your Revere will add another dimension to your photographs that you have been unable to obtain with your regular single- or twin-lens camera because it has only *one angle* of view. Now you can take pictures that have *depth* because the Revere views your subject from *two angles*, just as your eyes do, so that your pictures will be more lifelike and colorful than anything else you have ever taken or seen. As your eyes see the scene, so does your Revere 33 reproduce it!

The Advantages of the Revere Stereo

Your new Revere simplifies many of the techniques of stereo photography, and allows you to use easily procurable supplies and accessories. Old-time stereo photography involved the use of large film sizes. With your Revere you can use the conventional and standard 35mm film and secure results that are completely satisfactory. This is only one of the many advantages you will discover in the ownership of a Revere.

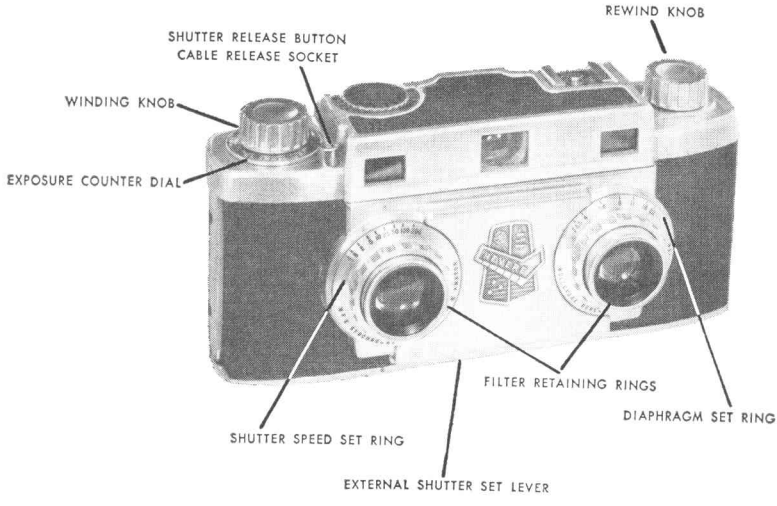
1. You can buy the standard 35mm cartridges anywhere in the world. This is a real convenience.

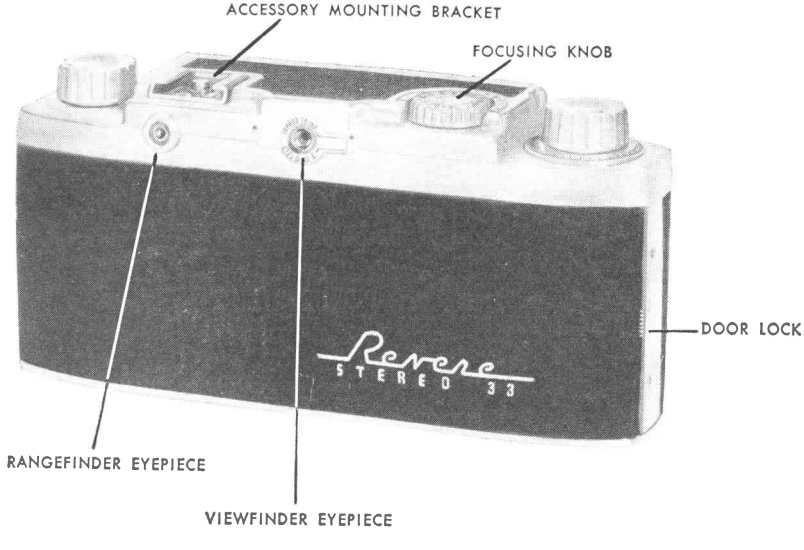
2. The short focal length of the Revere produces an extreme and natural depth of field.

3. The extreme depth of field obtainable from short focal-length lenses permits a wide shutter opening that is especially advantageous in making color exposures. Lenses of longer focal length require narrow shutter openings to achieve the same depth, whereas the short focal length can accomplish this with the shutter wide open and at relatively short exposures of 1/25 to 1/50 second.

4. Viewers are standardized for the 35mm size. This means that a matching stereo viewer is easy to obtain anywhere. Your Revere Stereo Viewer has a built-in light to eliminate the necessity for pointing the viewer at an overhead light source.

5. Projection of the slide is possible with this size since the standard stereo projectors are usually made for 35mm film.


REWIND KNOB
SHUTTER RELEASE BUTTON
CABLE RELEASE SOCKET
WINDING KNOB
EXPOSURE COUNTER DIAL
FILTER RETAINING RINGS
DIAPHRAGM SET RING
SHUTTER SPEED SET RING
EXTERNAL SHUTTER SET LEVER


ACCESSORY MOUNTING BRACKET
FOCUSING KNOB
DOOR LOCK
Revere
STEREO 33
RANGEFINDER EYEPIECE
VIEWFINDER EYEPIECE

6. The mounting procedure, which formerly discouraged popular use because of its required precision and care, has been standardized so that anyone can mount his own slides easily, or have Eastman Kodak Company mount them as part of the purchase price of their special No. 335 or No. 335-A package.

7. The camera is small and is easily handled.

8. The focal length of the *viewing* lens almost matches the focal length of the camera *taking* lens so that the size relationship of your subject is reproduced in the same proportion as when you view it normally. If a larger film size were used, the camera and viewer would be larger, because the taking and viewing lenses would have to be longer to maintain the same ratios that exist with the 35mm film size. Since the focal lengths of both lenses are practically the same, and your 35mm film is so much more easily available, nothing is gained by the use of the larger size.

Why Do We See Depth?

The beginner most often wants to know why the stereo camera enables him to see *depth* in his picture. Let us explore the normal processes of human vision.

You have two eyes. The average distance between the eyes is approximately 65mm (2⅝ inches). Each eye sees the scene a little differently than does the other eye because each focuses at a different angle. These separate angles of viewpoint are known as *parallax*. When you fire a gun, you must correct for parallax because your line of sight on the target is above the bore of your gun muzzle, while the angle of travel of the bullet is in another line. You must compensate for this difference or the bullet will miss your target. However, it is the parallax, or difference in viewpoint between our eyes, which makes depth perception possible. Each eye records and transmits a different image or angle of viewpoint, to the brain. There, the two images are fused into one, so that we perceive depth. In human vision, the brain is the coordinating mechanism that fuses the two dissimilar views into one homogeneous image. How is this effected by the Revere Stereo Camera?

Your camera duplicates the function of two eyes. It takes two views and each picture differs from the other because it is taken from a separate angle. When the two frames are mounted and viewed together, the brain fuses them into one image as if you were looking at the scene itself, and since each image varies slightly from the other, you receive the sensation of depth.

Triangulation

In order to obtain the stereo effect, you must *triangulate,* that is, the two lenses of the camera form the base of a triangle, and the subject is the apex, or top of the triangle. You can test this easily by taking two single pictures with a single lens camera, without moving the camera between exposures, and mounting them. There will not be, and cannot be, any depth because there is no variation in the points of viewing. The difference (triangulation) may be as little as 1/10 inch apart for close subjects, or perhaps miles apart for distant scenes, but there must always be a given distance between the point of viewing to produce stereo.

Depth Clues and Cues

Depth can be enhanced immeasurably by utilizing well-known still, motion, color, and optical principles for their cues (instantaneous reflex effect) and clues (requiring interpretive reasoning and judgment). Some of these are:

1. Still Effects
   - *a.* Linear perspective: by converging lines, etc.
   - *b.* Size differences: the apparent size of known objects compared with larger or smaller objects indicates positional space differences because of the difference in scale size.
   - *c.* Overlapping of far objects by those nearby, or by the partial overlapping of objects at different distances.
   - *d.* Aerial or bird's-eye perspective: looking down from a height.
   - *e.* Worm's-eye perspective: looking up at an object.
   - *f.* Haze and mist.
   - *g.* Focusing effect of producing unsharp backgrounds, etc. (best used for two-dimensional, flat pictures).
2. Motion Effects
   - *a.* A moving object produces a constantly changing relationship between itself and stationary objects that may be before, behind, or even in the same plane as itself; this creates a depth relationship.
   - *b.* Overlapping and separation of moving objects at different distances, or in motion in the same or opposite directions.
   - *c.* Bird's-eye movement perspective.
   - *d.* Worm's-eye movement perspective.
   - *e.* Change of size as the subject approaches or moves away from the camera.

3. Color Effects
   a. Relative brightness of an object.
   b. Shadows and shading.
   c. Color differences between red (advancing) colors and blue (distant and background) colors.
4. Optical Effects
   a. Binocular disparity (stereopsis).
   b. Triangulation: degree of convergence for different distances.
   c. Accommodation: fixation focus for objects close by or at infinity.
   d. Window-frame effect to outline and mask the scene.
   e. Ortho-stereo matching of the taking lens with the viewing lenses of the stereoscope.

Lighting Helps the Stereo Effect

Lighting can help increase the stereo effect because shadows, color variations, or shade gradations suggest depth. A light at a position higher than your lens creates a directional perspective or interesting lighting effects.

Perspective. A camera placed slightly higher than the subject position produces another directional suggestion of depth.

Positional Subject Placement in the Picture. Because distant subjects flatten out and show little or no depth, use a strong foreground subject (at least six feet or more from the camera) to help suggest depth. Otherwise, the distant object is flattened so much so that there will be no stereo effect. This is apparent in photographs of distant clouds, mountains, etc., where no foreground object would be normally found. Have some near foreground subject to produce depth.

The Taking and Making Phases

As a new Revere 33 Stereo owner, you do not want only to talk about stereo—you want to take and see it! This can be done easily by first dividing stereo into two phases; namely the "taking," or technical, phase and the "making," or picture-producing phase, wherein the picture actually comes to life through good stereo subject placement, composition, etc. Our first consideration is to show you how to "take" good shots with your Revere immediately. You will want, therefore, to learn the technical phase first. All the factors involved have been standardized for you by the author's Safe-Set Method. By

following it faithfully you will secure good results right from the beginning.

Introducing the Safe-Set Method

The technical phase is quickly mastered with the author's Safe-Set Method. This method teaches you to preset every factor that is essential for a perfect picture so that everything will be in place and nothing left to chance when you release the shutter. So, let us load the camera first according to the instruction book, or by having the camera store clerk load it for you. If most of your pictures will be taken outdoors or with electronic flash, then load the camera with daylight color film (Chapter 7).

First Assignment

Outdoor scenes are easy to take because your light is uniform. Follow these step-by-step instructions for a clear, not harsh day:

1. Set your shutter-speed dial (over the right lens when the camera faces the subject) so that the 50 is opposite the black index mark.

2. Set your aperture opening (over the left lens when the front of the camera faces the subject) so that the space between *f*/5.6 and *f*/8 is opposite the black index mark (*f*/4.5 if the day is hazy and *f*/3/5 if it is cloudy or overcast).

3. Turn your rangefinder focusing knob so that the 18-foot mark is opposite the black index mark. The parallax corrector is aligned, black line to black line, for correction of any subject from 10 feet to infinity. With this setting everything is in focus from 10 feet to infinity, and your rangefinder must not be turned or used again because it will complicate the preset conditions.

4. Hold the camera correctly and firmly; look through the viewfinder eyepiece only; level the camera with the built-in bubble level; and when your composition is pleasing, release the shutter.

By following this easy step-by-step procedure, you will have just taken a stereo picture. This procedure seems overly simplified but it is necessary to keep the beginner from becoming hopelessly confused by innumerable charts or diagrams.

Outdoor Portraits for Close-up Objects in Good Light. Because outdoor light is uniform throughout large areas, the shutter and aperture settings remain the same if portraits or close-up subjects are taken in the same uniform light as used for outdoor scenes. For the near dis-

DR. TYDINGS

OUTDOOR SAFE-SET STEREO FORMULA

OUTDOORS:

FILM: Daylight color or Type A with #85 Conversion Filter

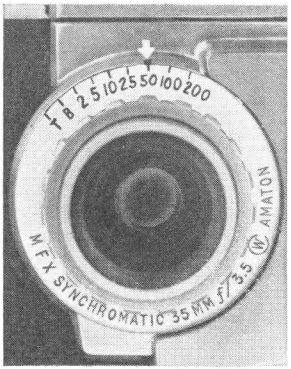
LIGHT: Clear day, not harsh

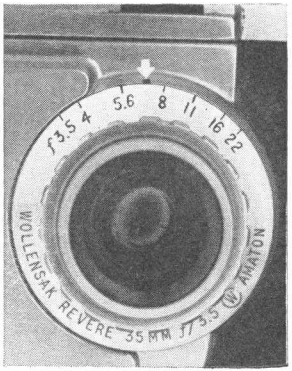
S—COCK SHUTTER SET AT 1/50

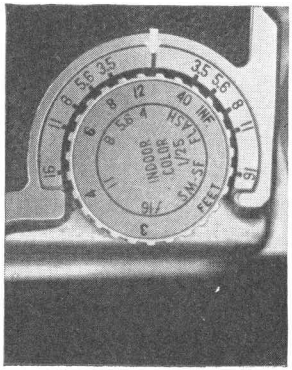
A—APERTURE

F—SCENICS: SET RANGEFINDER—18 FEET SUBJECT 10 FEET AWAY OR FURTHER

E—EFFECT







VIEW

COMPOSE

RELEASE

WIND

OUTDOOR SAFE-SET FORMULA

Portrait	*Distance*	*Subject Size in Inches*
Head	2.5 feet	20 x 20
Head and Shoulders	3.5 "	28 x 28
Three-quarters	5.5 "	44 x 44
	7 "	63 x 63
Full body	10 "	80 x 80
	14 "	110 x 110
	16 "	130 x 130

OUTDOOR PORTRAITS (Shutter and aperture at 1/50, f/6.3 with color)

1. Choose portrait size
2. Set rangefinder
3. Look through the rangefinder and approach your subject until image is complete
4. Shift to the viewfinder
5. Wait for the peak of expression or action
6. Squeeze the release
7. Advance film for the next exposure

tances, the focusing arrangement differs radically. Now the Revere rangefinder must be used, because the nearer the subject-to-camera distance, the more limited is the area of over-all sharpness. Good stereos must always be as sharp as possible from the foreground to the distant horizon.

The rangefinder will assure this close-up sharpness, but it is most effective when used with the Safe-Set Method, in which you preselect the size of your subject from the chart on page 12 and set your rangefinder focusing knob for it. Then, you look into the left rangefinder eyepiece and walk toward your subject until it is in focus. At this point you need merely to shift your eye to the viewfinder eyepiece (previously corrected for parallax [Chapter 10], if necessary). At the peak of the picture, release the shutter, and once again you will have taken a perfect stereo.

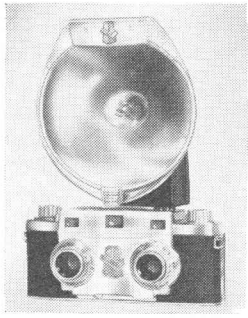
The rangefinder is used in this way because, once the controls have been set, nothing need be altered afterward. Beginners have a tendency to twirl the focusing knobs continually so that the camera is usually out of focus when the subject has the most pleasing expression or is at the height of an action. But if the controls are preset, then even a 6-inch difference in distance is unimportant because of the depth of field inherent in the 35mm lens. Follow either of these two methods and you will always "take" good stereos.

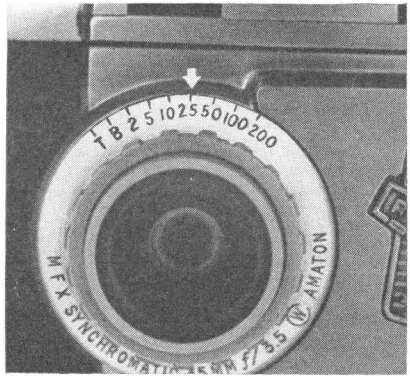
Indoor Stereo with Flash. Flash is the magic package of light that enables you to take thrilling pictures of your family in your own home. With the Safe-Set Method, every picture can be perfect because your sunshine is carried with you in the flashlamp and the method ensures the correct exposure.

Use the chart on page 12 for the preset subject sizes. Then, presuming that you have standardized with the SM (General Electric) or SF (Sylvania) lamps, preset the aperture recommended in the chart. The Revere rangefinder dial also shows the correct flash exposure setting. These settings are computed for SM or SF flash bulbs used with indoor color film and matte reflector. The Safe-Set chart is based on a polished reflector. Use the apertures that your own reflector requires. The lens opening is shown on the dial just below the range setting. Look through the rangefinder eyepiece and approach your subject until it is in focus; shift your eye to the viewfinder eyepiece and release the shutter at the peak of effect. The flash will ignite and synchronize correctly with the shutter action and the exposure will be perfect.

DR. TYDINGS
INDOOR SAFE-SET STEREO FORMULA

SHUTTER: ONLY AT 1/25





INDOORS:

FILM: TYPE A

LIGHT: SM OR SF FLASHLAMP,
NO FILTER.

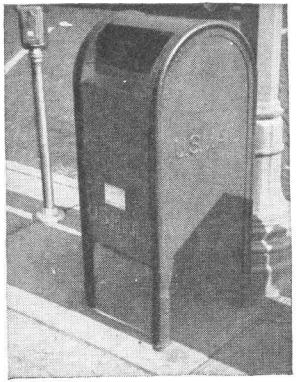
A FINISHED SAFE-SET CHART

Body Size	Pre Focus	SM—SF No Filter	#5, #25, #81C	#5A Dura Flash No Filter
Head	2.5	f/22	f/22 + 2 thin white handkerchiefs	f/22 + 2 thin white handkerchiefs
Head & Shoulders	3.5	f/16	f/22 + 1 thin white handkerchief	f/22 + 1 thin white handkerchief
½ Body	5.25	f/11	f/22	f/22
	7	f/8	f/16	f/16
Full Body	10	f/5.6	f/11	f/11
	14	f/4	f/8	f/8
	16	f/3.5	f/6.3	f/6.3

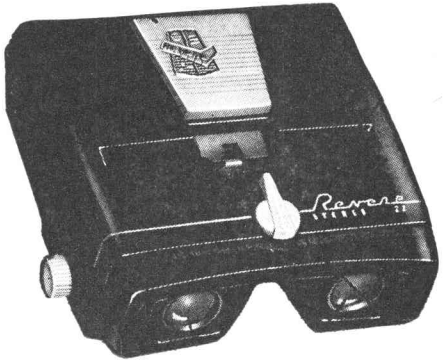
INDOOR SAFE-SET FORMULA

1. With flash lamp in place, set speed and cock shutter.
2. Choose subject size and pre-set rangefinder.
3. Pre-set iris.
4. Look through rangefinder and move back and forth until the image is complete.
5. Shift to the viewfinder.
6. Gently squeeze the release.
7. Rewind for the next exposure.

UNLOAD CAREFULLY
MAIL TO THE LABORATORY
AFTER CHECKING:
NAME, ADDRESS, POSTAGE.



VIEW WITH PLEASURE



When you have finished the roll, rewind the film back into its original cartridge (it must not be opened until this has been done) or have the camera store clerk rewind it for you. Then mail your film to the processing laboratory where it will be developed and mounted. When the mounted slides are returned to you, place them in your viewer, and you will be thrilled to see the lifelike stereos that you yourself have made.

Although these instructions are at a minimum, they will produce perfect stereos. The only judgment required on your part is to wait for a clear day and preset your camera for the correct photographic conditions, or use your flashlamps according to the Safe-Set Method. Follow these rules and you will "take" excellent stereos.

All the picture-taking factors must be remembered before the exposure has been made. Check with the word SAFE before you release the shutter.

S: Shutter
A: Aperture
F: Focus
E: Effect

Your Revere 33 Stereo is a flexible and versatile instrument that can be used under many variations of light and distance. Chapter 2 will show you how to make any simple change needed to meet all possible stereo conditions.

2. Using the Safe-Set Formula

S: SHUTTER

How the Shutter Works

The shutter of your camera is a control device like the knob on a water faucet. The comparison of light and water flow is made to help you to visualize how the amount of light can be measured and controlled just as the amount of water can be made to flow in any quantity when the faucet is opened. Similarly, when the camera shutter is opened, light enters through the lens to the film. When enough light has entered to expose the film, then the shutter is closed.

The volume of light available determines whether it is necessary to leave the shutter open for a long or a short time. When the volume of light is very low, you may be required to leave the shutter open for as long as an hour or more (time exposure). On the other hand, if a large amount of light is available, a sports or action shot should be taken in as little as 1/200 second to stop the fast motion of your subject. With the motion chart, you can choose the correct shutter speed needed. If a speed is required faster than those allowed by your shutter, you can "pan" your camera so that the subject will be sharp when taken, although your background will be blurred. If a choice of speeds is available for taking any subject, the slower speeds permit the use of a narrow iris opening for a gain in over-all sharpness, while the faster shutter speeds require a wide opening and will produce a shallow depth of field. The correct choice of iris opening, which depends on your shutter speed selection, may often be an important point in making or breaking the final effect of a picture.

For example, landscapes usually require a narrow opening to produce an over-all sharpness; therefore a slow shutter speed is used. The Revere Stereo shutter has ten shutter speeds, including *B* and *T*. While it is a double-action shutter, in that it must be cocked before being released, the shutter cocking action is performed simultaneously with your film winding. You need be concerned about separate cocking of the shutter only if intentional double exposures or separated exposures, as for hypo- (close-up stereo) or hyper- (long distance stereo), Chapter 10, are made.

SHUTTER SPEEDS FOR MOVING SUBJECTS

Subject at 25 feet	Line of Motion ↑↓	↖↘	⇆
Walking at 5 miles per hour	1/25	1/50	1/100
Children playing	1/50	1/100	1/150
Street activity	1/50	1/100	1/150
Swimmers, skaters	1/50	1/100	1/150
Vehicles at 20 m.p.h.	1/100	1/200	1/300
Football, running	1/100	1/200	1/300
Vehicles at 40 m.p.h.	1/200	1/400	1/600
Tennis	1/300	1/600	1/900
Horse race	1/500	1/1000	1/1500
Airplanes	1/500	1/1000	1/1500

N.B. *When your subject is at* 50 *ft., multiply all speeds by* 2 (1/100 x 2 = 1/50).

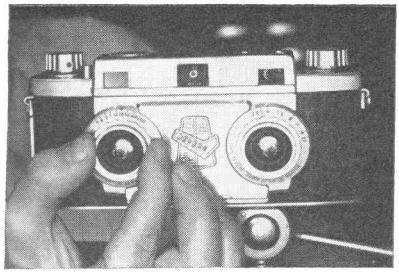
For 100 *ft. subject distances, multiply all speeds by* 4 (1/100 x 4 = 1/25).

Shutter Speeds

The shutter speeds are *T*, *B*, 2, 5, 10, 50, 100, and 200. These numerals indicate fractions of a second, e.g., the 2 means 1/2 second, the 25 means 1/25, etc. When the shutter is set on *B* (bulb), the shutter remains open only as long as the release button is depressed. As soon as the pressure is removed from the release button, the shutter will close. On *T* (time) the shutter is opened when the release button is pressed and remains open even when the pressure is removed. In order to close the shutter, pressure must be applied a second time to the shutter release. The *B* setting is used generally for a 2- to 5-second exposure while the *T* setting is used for much longer periods of time.

Practicing

Practice releasing the shutter. Release it a number of times to find the exact point at which it is activated. Some button releases require considerable depression before the exposure is made. Because action pictures or baby portraits require instantaneous exposures, the shutter should be released as quickly as possible or you may lose in one split second the once-in-a-lifetime expression that you are trying to capture.



The Speed Setting Dial.

Speed Rule

There are so many shutter speeds and iris opening combinations possible that the beginner can become easily confused. The problem can be simplified by choosing only two speeds, namely the slowest (1/2 second for still, or inanimate, subjects) or the fastest (1/200 second for moving objects). The choice of a fast shutter speed and a wide opening, or a slow shutter speed and a narrow opening, are advance considerations which will be discussed more fully on page 23.

Avoid Shutter Strain

Metal springs can become worn if too much strain is placed on them. To retain full spring tension, leave your speed ring setting at *T* or *B* if the camera will not be used for any length of time. These settings leave the spring tension relaxed and do not strain the lever or gear. Therefore, do not advance your film until you are ready to take the next picture; otherwise, the camera shutter spring will be under tension. Before loading your camera after it has not been used for a long time, or after winding to the next frame if film is already in the camera for a long time, test your shutter a number of times to return the uniformity of tension pressure on the springs. Cover the lenses with the rubber cap guards supplied with the camera.

Hand-held Exposures without Flash

The 1/50-second speed is the dividing line between hand-held and tripod recommended exposures. A speed of 1/25 second or slower should be taken with a tripod. However, this is often not possible and you must compromise with a hand-held shot. To reduce any tremor or vibration that would spoil your picture brace yourself in this manner:

Place your feet so that your toes are approximately 4 inches apart and your heels about 6 inches apart. Then, take a deep breath, exhale, and just as you complete exhaling, you will find that you are steadiest. Take your picture at this steady point. Otherwise, of course, take it when you can—but squeeze the release smoothly.

Cable Release. A long, loosely looped cable release should be used at slow speeds because it prevents the transmission of any motion as the shutter is released while the camera is on a tripod. Without a cable release, the mere pressure of your finger on the shutter trip will cause the camera to vibrate so that a slow shutter-speed shot will be blurred. Therefore, to minimize vibration, use a cable release. Choose a long one, and squeeze the plunger gently when taking the picture.

Delayed Action (*Self-timer*). A self-timer is a device that delays the release of the camera shutter for around 15 seconds after the self-timer is tripped. The time delay allows you to enter and become part of the picture before the shutter is released. A self-timer is important because you can now complete family groups by being "in" the picture rather than by always being the "missing person."

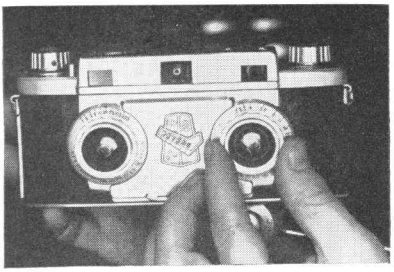
A self-timer can be used for taking flash pictures as well. Everything should be safe-set for a certain distance for a perfect result.

A: APERTURE

How the Aperture Operates

While the shutter controls the flow of light, the lens aperture regulates the amount of light. When a faucet is open, water flows through it for any desired time. A narrow faucet opening lets a small amount of water come through, while a large opening permits a greater volume to flow. The relationship of the diameter of the faucet to the volume of flow of water is similar photographically to the size of the lens opening in relation to the quantity of light entering.

In order to calculate the size of the aperture opening for the purpose of estimating an exposure, a number is assigned to various diameters. This number is derived by dividing the diameter of the opening into the distance required to form an infinity image. If the lens forms an infinity image when it is 2 inches distant from the film, and the opening is ½ inch wide, the lens will be marked *f*/4 for that diameter. If the opening is 1 inch wide, 2 divided by 1 equals *f*/2. A small number indicates a wide opening, whereas a high number indicates a narrow opening. The wider the opening, the greater amount of light that is admitted in a given interval of time. Con-



The Aperture Adjustment Dial.

versely, the narrower the opening, the smaller the volume of light that can reach the film within the same time that the shutter remains open.

For completely equal exposures, you may have either a large opening and a short shutter speed, or a narrow opening with a longer exposure time. There are advantages to be obtained from each combination. A wide opening is used for short exposures, or when a slow emulsion speed requires large amounts of light for an exposure. With a wide opening, the subject will usually be sharp within a limited front-to-back distance. A narrow opening, on the other hand, will produce subject sharpness in far deeper areas of the picture. When a sharp image is desirable, but not always possible, compromise by getting what you can, with at least your main subject absolutely sharp.

Aperture Sizes

The iris diaphragm of a lens regulates the size of the opening for admitting light to the film. The iris is similar in many ways to the human eye. If you look into a mirror and bring a light close to your eyes, you will see that the iris opening narrows. As the light is moved away, the iris widens. You duplicate this narrowing and widening with the diaphragm of your lens by moving the iris opening indicator from the higher to the lower number. If you will look through the back of your camera, and then through the lens, you will see the similarity as you narrow and widen your lens opening.

The f Number. The indicators 3.5, 4, 5.6, 8, 11, 16, and 22 are calibrated marks for telling us how much volume of light is admitted through the lens. With the exception of *f*/3.5 to *f*/4 (which has a 50 per cent volume difference), all others represent a 100 per cent difference in light volume. When we go from a lower to a higher

number, the light is cut 100 per cent; when the lens is opened from the higher number to the lower number, the volume is increased 100 per cent.

Remember: The narrower the opening of your lens, the greater will be the depth of field. Narrow stops give great depth of field; wide stops yield very shallow areas of sharpness.

Full-stop marking		Relative light increase, if only the iris is widened
f/1	1	These are full stop openings with a 100% difference in light transmission between two adjoining stops. If the indicator is moved approximately half way between the two markings, the iris is opened ½ stop and the difference in light transmission is increased 50%. Half way between f/5.6 and f/8 produces f/6.3, between f/8 and f/11 is f/9.
f/1.4	2	
f/2	4	
f/2.8	8	
f/4	16	
f/5.6	32	
f/8	64	
f/11	128	
f/16	256	

Half-stop openings		
f/3.5	1	These specific numbers produce a difference in light transmission of 50% from one mark to another.
f/4	1½	
f/4.5	2	
f/5.6	3	
f/6.3	4½	
f/8	6	
f/9	9	
f/11	12	
f/12.5	18	
f/16	24	
f/18	36	
f/22	48	

N.B. *Everything being equal, if the shutter speed is changed from* 1/100 *to* 1/200, *the iris must be widened one stop.*

If the shutter speed is changed from 1/100 *to* 1/50, *the iris is narrowed one stop.*

If the shutter speed is changed from 1/100 *to* 1/75, *the shutter is narrowed by* ½ *stop.*

If the shutter is narrowed from f/8 *to* f/16, *the shutter speed is lengthened four times so that* 1/100 *will be re-set to* 1/25.

Using a Constant Iris Opening

It is possible to preset your iris opening and keep it at a constant size for all lighting by varying the shutter speed. This compensates for the difference in exposure that would be needed when changing from dim to bright lighting. A constant iris setting is necessary if your depth of field must be uniform; otherwise, widening or narrowing the opening changes the depth of field. To use the iris preset method with color, e.g., an average subject (Class 3 of the Exposure Chart on page 30) is set for:

f/4.5 Sunny Day, 1/100
Bright Day, 1/50
Cloudy Day, 1/25
Dull Day, 1/10

Depth of Field for Short Focal Length

An inherent quality of the 35mm (1⅜ inch) lens of short focal length is its remarkable depth of field even when the iris is wide open. This short lens at *f*/4 has the same depth of field as a 3-inch lens at *f*/8, or a 6-inch lens at *f*/16. If we presume that your light value is constant, then it may be possible to get sufficient depth of field with the lens set at *f*/4, while a longer focal length would require a narrower opening for the same depth to prevent it from becoming hopelessly underexposed. In fact, a lens set at *f*/16 requires 16 times more light than at *f*/4. The depth of field possible with a lens of short focal length and a wide opening is often the critical all-important difference between a failure or a successful picture.

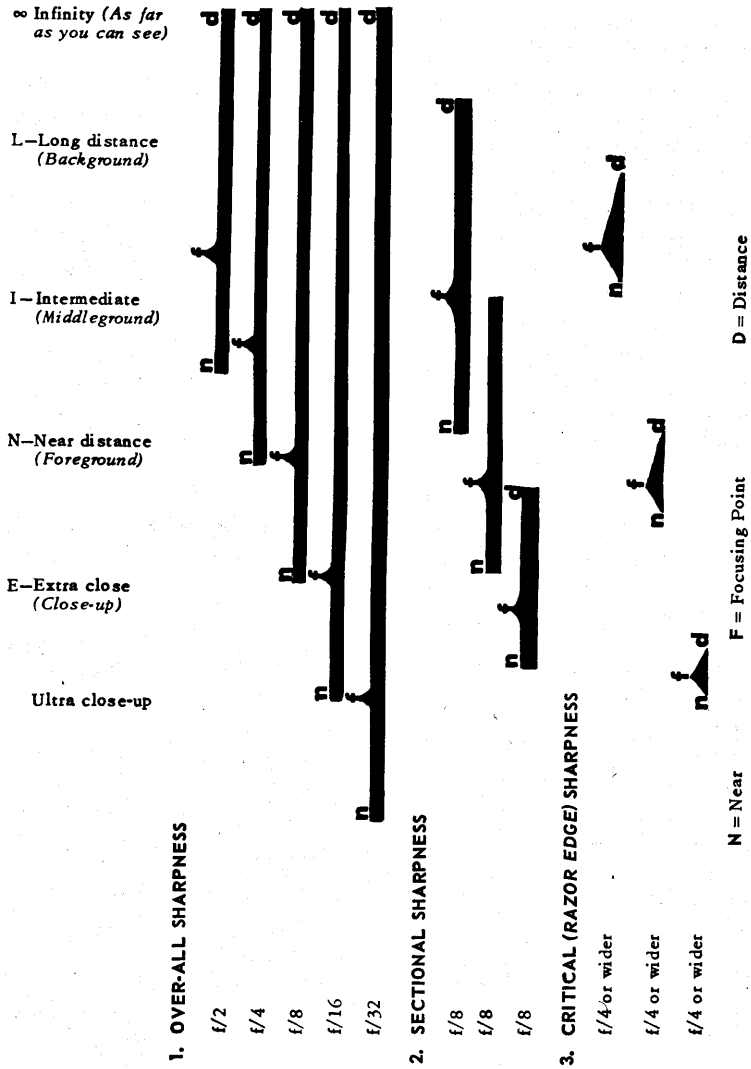
So far you have learned to set your shutter and control the variable opening (iris) on your lens. Now you must learn the **F** and the **E** of SAFE.

F: FOCUS

Focusing is the process of securing the maximum amount of image sharpness. The Revere 33 Stereo, with its short focal length, solves many focusing problems because it produces:

1. Extreme depth of field, even with wide openings.
2. Large, critically sharp areas, because of the inherently large depth of field.
3. Wide open, short exposures with color film, which are still sharp even at the widest openings.

FOCUSING EFFECTS



Stereo Sharpness

Even with the focusing advantage of the Revere, stereo requires far more care in focusing and holding your camera than is required with other types of cameras, because you must retain full sharpness in every detail and your picture must be level when definite verticals or horizontals appear. You are trying to duplicate with your camera, both photographically and mechanically, what is seen by the eye. When you look about you, every subject appears sharp to your eyes. In duplicating a scene with stereo you must try to get the same overall detail sharpness in your picture so that it will now be as acceptable to the eye as the original scene.

While the human mind can compensate for certain visual distortions, the stereo camera cannot do so. Stereos produced by a poorly focused and loosely held camera may prove difficult to view if vertical or horizontal straight lines (e.g., telegraph poles, railroad tracks, etc.) are present and the camera has not been held at a level position. If definite vertical or horizontal lines are absent (as with flowers and other similar forms), the camera can be held at any angle. Acceptable stereos may be taken of any nonlinear form by eliminating any linear (straight line) reference points in the subject area. The Revere 33 Stereo, however, contains a bubble level that will solve the problem of vertical or horizontal linearity.

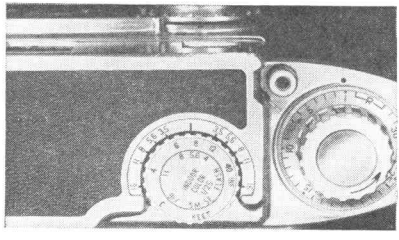
Stereo Definition

The high magnifications required for viewing or projecting your pictures require that the film image have the highest definition and resolution possible. This high standard of sharp focus can be secured only through accurate focus. Each of the following three ways for sharp focusing is used for different effects—the hyperfocal distance for outdoor scenes that have a large depth of field; the depth-of-field scale for areas of limited depth; and critical (razor edge) focusing for subjects with shallow depth.

Speed Focusing (*The Hyperfocal Distance*). If your lens is focusing at infinity, there will be a near sharpness point of focus when the lens is wide open, and this point will be moved closer as the iris is narrowed. If the infinity distance setting is moved to each respective near point as the diaphragm is narrowed, you will discover that everything will be in focus from one-half the near-point setting to infinity. These points are known as the *hyperfocal scale*, and each setting is the hyperfocal distance for its respective iris opening.

HYPERFOCAL DISTANCE TABLE - IARGE AREA SHARPNESS

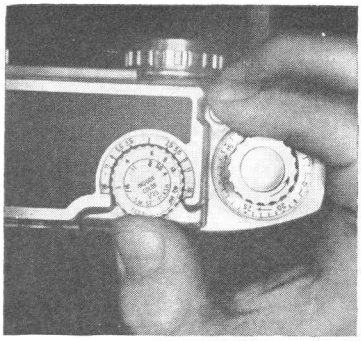
f/number Diaphragm Setting	Distance Dial Setting	Area in Focus From To
f/3.5	45'	22' to Infinity ( )
4	40'	20' to Infinity
5.6	28'	14' to Infinity
8	20'	10' to Infinity
11	14'	7' to Infinity
16	10'	5' to Infinity
22	7'	3½' to Infinity



Built-in Depth-of-Field Table. At f/11, read from both sides of the focusing line, everything from 4 to 40 feet is sharp when focused at 7 feet. At f/3.5 only subjects at 6 to 12 feet are sharp.

1. *Hyperfocal distance scale.* This scale is most useful outdoors because sufficient light is available for the narrow openings needed, while the shutter speed can still be fairly rapid.

2. *The depth-of-field table.* The depth-of-field table shows the area of sharpness when your focusing scale is set at any distance and used with the various *f*/openings. This scale is right on top of your rangefinder focusing knob. The depth-of-field scale is valuable particularly for pictures where a definite amount of front-to-back sharpness is needed, as in a room. For example, if everything must be sharp in a room from 3 feet to 15 feet, the depth-of-field table engraved around the rangefinder focusing knob tells you that your focus should be set at 6 feet and your iris at *f*/16. Now, everything will be in focus well within the 3- to 15-foot limit. To make the exposure, take your light reading and then find the exposure time needed for *f*/16. When the depth-of-field table is used in this way, everything except the exposure time is preset. When the *f*/16 exposure time is worked out, the exposure can be made in complete confidence that you will obtain a perfect picture. If flash is used, enough lamps must be brought together for an *f*/16 iris opening.



The rangefinder focusing wheel is moved with the thumb of the right hand.

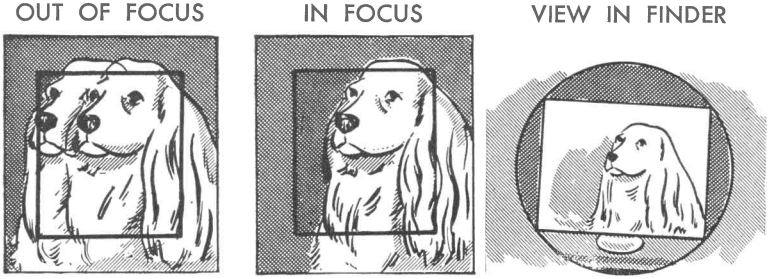
"Action" Preset Focus

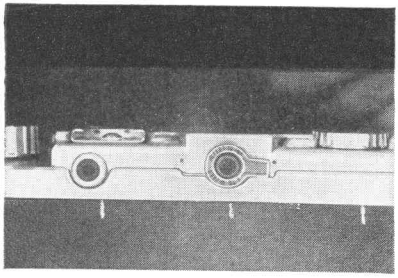
Preset focus for action pictures within a limited area requires setting your focusing scale at 18 feet for *f*/6.3 to assure subject sharpness from 10 feet to infinity; and at 7 feet for sharpness from 5 to 10 feet. However, your subject's background should be neutral (such as a wall or a sky) so that nothing interferes with, or detracts from, the sharpness of your over-all subject image.

Flash focusing for an exposure differs from the outdoor method because your flash exposure is dependent solely on the light-to-subject distance. If this distance changes, then your exposure opening changes. Therefore, the hyperfocal distance and depth-of-field settings are rarely used with flash.

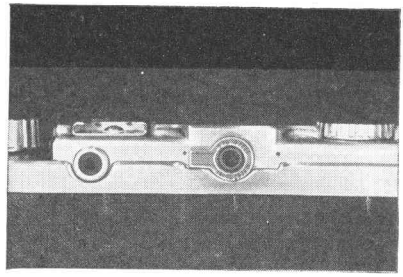
Precise Focus (Critical or Razor-edge Focusing)

The rangefinder, a distance measuring device, is used for critical focusing. Theoretically, it operates by forming a geometric pattern of two images of your subject viewed from two separated points. These two different images are brought together by a movable mirror





The parallax lever is turned to the right for infinity to 10-foot distances. Pre-set it before the exposure.



Turned to the left for 10- to 3-foot distances.

to form a single continuous image. The amount of mirror movement needed to bring the subjects together is measured on a calibrated scale, which is then read to determine the exact subject distance.

Your Revere camera rangefinder is coupled; that is, the camera lens is moved with the rangefinder so that the settings for both are set simultaneously as distance is changed. This is a tremendous advantage because otherwise you would have to find the range first and then set the distance scale. The rangefinder must be used with flash because your flash lamp-to-subject distance is critical for a perfect exposure. The only recommended method is that of using the Safe-Set Method. With this method you will always be sure of both a sharp image and a perfectly exposed picture.

E: EFFECT

Viewfinding and Composing

The viewfinder is centrally located and adjusted for perfect composition up to 10 feet with the setting for infinity (black line with the black dot); or for 10 to 3 feet with the red line aligned with the red dot. For extreme close-ups, further parallax correction is needed and this is discussed in Chapter 10.

The Revere 33 Stereo has a built-in level to align your camera correctly so that it will not be tilted sideways. This is a valuable feature for pictures with strong verticals or horizontals that are to be projected. However, if you do not have time, as when taking action pictures, to look at the bubble level, you can quickly align the image with the vertical or the horizontal border of your viewfinder.

For better composition of your subject, divide your viewfinder into thirds, both horizontally and vertically, and place four dots at

the intersections of the dividing lines with a sharp pen and India ink. These dots are not distracting when seen in your viewfinder and serve as excellent guide points for composition and subject placement.

Exposure

Now that the mechanics of picture taking have been described, all that remains is to integrate this knowledge.

You may know how to set your shutter and iris, but there is judgment required as to what related settings you may use. There are three methods to determine the proper camera settings.

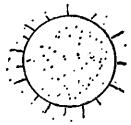
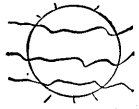
1. Every roll of film is packaged with an instruction sheet. On this sheet, you will find recommendations for shutter and iris settings for different light conditions. If you follow these recommendations, you will definitely get properly exposed pictures. Remember that the manufacturers take great pains to assure the accuracy of any information. If their information is unreliable, then you will not use their film. So you can be certain that all their information has been thoroughly checked and rechecked.
2. The exposure chart that is given here will produce excellent pictures. It has stood the test of time and is based on long experience. There are always three factors in determining your camera settings. This chart has standardized the procedure so that the only variable will be your iris opening. The changing iris openings will be derived by simple arithmetic. Simply choose the correct light conditions with its number and then multiply it by the suitable subject classification number. The resulting number will be your iris setting. For example, if you are using color film with an ASA 10 and the shutter speed of 1/25, then when your subject is average (3) multipled by hazy sky lighting (2), the result will be 6. If you set your iris at 6.3, your exposure will be "on the button." Practice a number of times until you have mastered the chart. While this chart gives your iris opening for set shutter speeds only, you can change the settings at will since you can increase your shutter speed by widening your iris opening in proportion in order to maintain the same amount of light. The chart will show you that different shutter speeds require proportionate iris openings. If you know what speed is needed, then you can open your iris and still maintain the correct exposure.

3. A photo-electric meter is the accepted standard for accurate light measurement to indicate the correct exposure. While a chart may be used outdoors, only a photo-electric meter is recommended for indoor use with artificial light.

SIMPLIFIED OUTDOOR EXPOSURE CHART

Film: Outdoor Color—A. S. A. 10 B & W—A. S. A. 50
#85 Filter with Indoor Color Shutter Speed 1/100

Shutter Speed—1/25th

45° Light Angle to Subject	 4—Sunny Strong shadows	 3—Bright Soft shadows	 2—Cloudy	 1—Dull
4 - Wide, clear open spaces	16	12	8	4
3 - People, trees, architecture in outdoor middle distances	12	f/9 or **COLOR Basic recommended setting 1/50th at 6.3**	6	3
2 - Average subjects; open street, near distances	8	6	4	2
1 - Shaded street	4	3	2	1

For normal subjects, normal conditions, normal areas.
Use 1/2 stop wider for dark subjects, etc.
Narrow 1/2 stop for light subjects, etc.

There are two types of photo-electric exposure meters:

1. The *incident light* type [recommended] measures the light that is falling on a scene or subject. The incident light meter generally may have a collecting sphere (like half a table tennis ball), masks, or grating, and a reading is taken by pointing the sphere at the camera. The precautions for this type meter require that you once again keep your body free from shielding the light reaching the sphere. The sphere has the property of evening any light reaching it so that the readings are very accurate and are not sent into too high readings when a spotlight shines on the subject.
2. The *reflection* type measures the amount of light reflected from the subject. The meter must be used with a gray card for accurate results. A gray card is used because it is neutral. When a reading is secured from a neutral gray card, then automatically your blacks will photograph black and the white shades will be white. If a gray card is not used, then you will get different readings from dark or light subjects. Since both readings cannot be correct, then you must do some mental calculation to figure out a middle figure that you hope will give the correct exposure. The mental calculation is minimized by the gray card. The only precaution is to be certain that the card is large enough so that you may take a reading (point the meter at the subject from a 10″ distance) and be assured that only the reflection from the card will influence the meter. In addition, be sure that your body is not blocking any light. Bend your body down and away so that your hand is holding the meter free and clear. With these precautions your meter readings will yield excellent results.

The exposure factors for flashlamp and flashtube are very different from those gotten by either of the three mentioned methods.

Every flashlamp or flashtube is supplied with a chart which provides you with a guide number to be used with any film at certain definite shutter speeds. Since you know the film and shutter speed, the only remaining unknown is the iris opening. The iris opening is gotten by simply dividing the subject distance into the particular guide number. If your flashlamp has a guide number of 110 and your subject distance is 10′, then when we divide 110 by the 10, the answer is 11. The iris opening is set at f/11. If the subject is 20′ away, then our division will show our opening to be f/5.5.

The color of the flash of some flashlamps differs from your film. Correct color rendition may require correction with a filter. With an SM or SF flashlamp used in conjunction with Type A film, no correction color filter is necessary. If a #5 or #25 flashlamp is used with Type A film, then a correction color filter is necessary because otherwise your results may be too blue. The 8/C filter balances the color of the #5 and #25 flashlamps so that it is similar to the color balance of your Type A film. These Guide numbers should be used only with a polished reflector.

Standardize with one flashlamp so that you know its characteristics well. With standardization will come uniformity of result. When you can predict your exposure results, you will have more time to concentrate on your subject because mechanical manipulation will be reduced to a minimum.

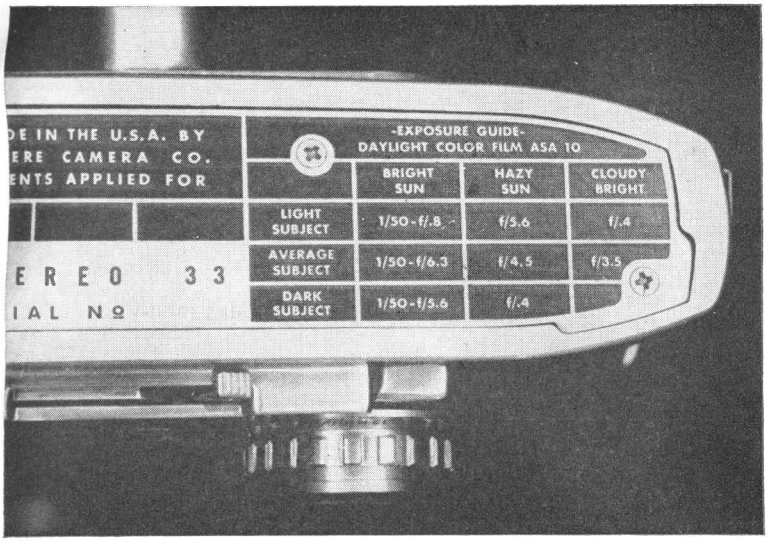
Finally, remember to hold your stereo camera firmly, and learn to squeeze the shutter release gently so that there will be no jarring of the camera. Practice releasing your shutter in front of the mirror. You will notice that, no matter how steady you may think you are, there will always be a slight tendency to pull the camera in the releasing direction. You will find that pictures taken at an oblique angle can result only in stereos that are painful to view. Practice until you have mastered the correct method of holding the camera while releasing the shutter.

Cable Release

Adjacent to the shutter release button is a socket for the cable release. Any American type with a straight thread may be used. When the cable release is used, there is a complete absence of vibration in the taking of the picture. Caution: use only the proper cable release. If an improper cable release is used, there is great danger of the plunger going through and seriously injuring the shutter mechanism.

Delayed Action

There are a number of delayed action mechanisms which will fit into the Revere 33 cable release socket. The delayed action mechanism is particularly desirable when you wish to get yourself into a picture. With it, you are generally able to take flash pictures of yourself or, by posing in any scenic picture, add that necessary human interest which otherwise would not be possible to obtain.

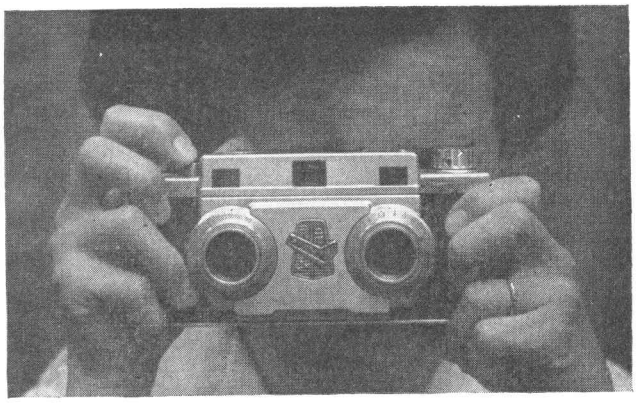


The Revere Outdoor Exposure Guide.

PRACTICING THE SAFE-SET METHOD

Preset!

Practice altering all your camera settings for different conditions of shutter speed, iris opening, and distance so that the procedure will become automatic. The Safe-Set Method for focusing is recommended at all times because even the beginner can grasp it readily. If everything is preset, there is very little chance for focusing error—at most, 5 per cent. Without presetting, the focusing error can be considerable. To prove it, turn the rangefinder focusing knob one turn (the usual change to see whether you are in or out of focus), and you will find that you have moved your distance setting from infinity to 5 feet. Strangely enough, the out-of-focus position seems to occur always just as you are focusing your camera for the very important bit of action that you wanted so much to take. So don't be caught out of focus! Preset! With the Safe-Set Method you are always ready and your 5 per cent difference is more than compensated for by your depth of field.



The Camera Must Be Level.

Review the Safe-Set Factors!

Memorize these points and you won't go wrong:

a. For speed focusing when there is little time to use a rangefinder, the hyperfocal settings are used for subjects with large areas of depth.

b. The depth-of-field scale is used for subjects of moderate depth dimensions (rooms, interiors).

c. The rangefinder precision focus is necessary when the subject's front-to-back measurement is small or shallow.

However, regardless of the focusing system used, your subject must be *sharp!*

3. Loading and Unloading Your Revere

Know Your Camera First

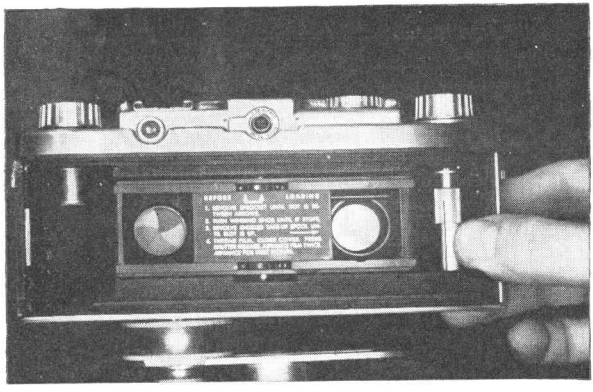
These instructions have been placed here in the book because otherwise the beginner might load his camera and then find that he could not practice his Safe-Set Method without wasting the film in a loaded camera. Therefore, before loading your camera, practice every safe-set feature so that you can see exactly what happens when you change your settings or trip the shutter.

Loading

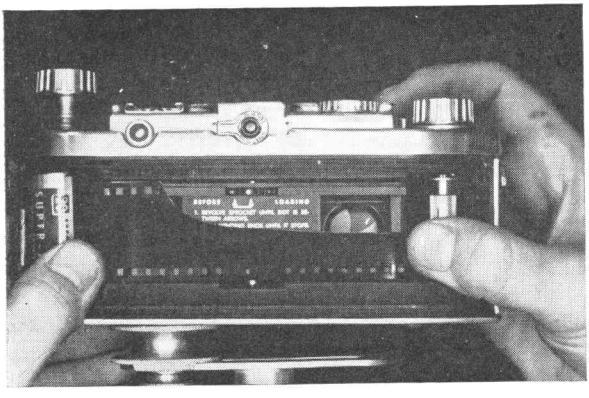
Now you are ready to load your Revere 33 Stereo. In loading or in handling the camera for any purpose, remember that it is a delicate instrument. Load it then, for the first time, over a table. Thus, if it should slip from your fingers, it will be safe.

1. Pick up the camera with your left hand so that the winding knobs face you and the lenses are toward the palm. Slide the cover-lock to "Open"; remove the camera back cover and place it in a safe place within easy reach.
2. Pull the rewind knob up.
3. Turn the winding knob until it stops.
4. Revolve the take-up spool until the dot is up.
5. Grasp the cartridge and pull out the film leader. Insert the film leader end (it must be cut exactly as illustrated) securely, as far as it will go, into the slot of the take-up spool.
6. First draw the film cartridge across the film channel so that it pays out film and then drop it into its empty chamber. Push down the rewind knob. A slight slack in the film is taken up by turning the winding knob COUNTERCLOCKWISE (the opposite direction of the way a clock hand turns).
7. Insert the cover hinge by hooking it into the hinge recess of the left side of the camera back and allow the back to move into place. Close the cover, press it down, and slide the slide-cover lock to the "Lock" position. Turn the winding knob until it locks and cannot move any farther. Press the shutter release. Advance the film until the winding knob stops a second time. Press the shutter release a second time. Turn the winding knob a third time until it locks. You are now ready for the first exposure. Set the exposure counter dial

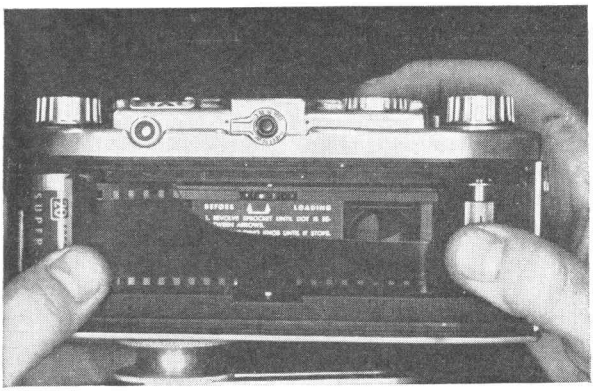
Bring the white dot between the guide marks.



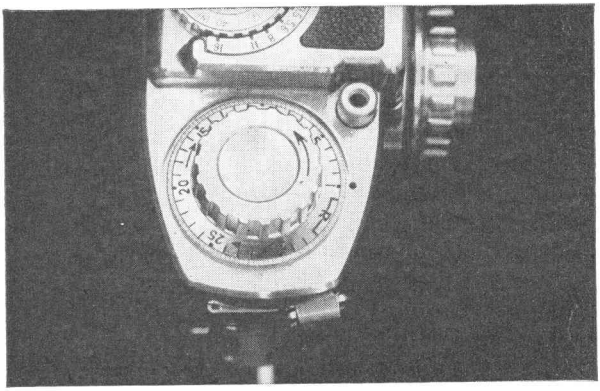
Turn the take-up spool until the slit points up.



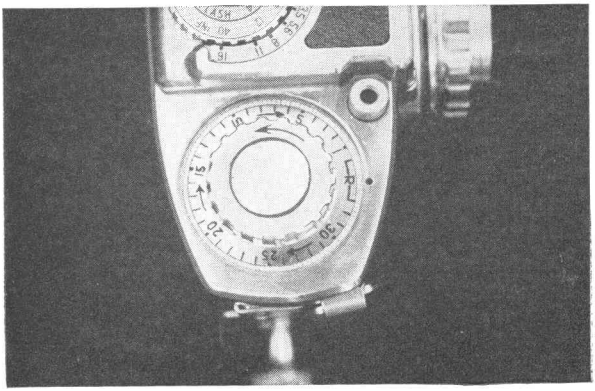
Slide the tongue into the slit, pay out film and place the cartridge in its chamber.



The rewind key is pushed down.



Close the cover. Press shutter button and wind film three consecutive times then set film counter dial on number one for the first exposure.



Move the R to the dot to rewind the film.

to 1. Unexposed film is in position, your shutter is cocked, and you are ready for your first picture. Make it good!

Unloading

1. A 35mm film is totally unlike the regular box camera film because the film *must be wound back* into its original cartridge. Because of this fact, it is most important that you do not use undue effort to force the last exposure if it is at the end of the cartridge. If this should happen, then it will require tedious light-tight darkroom work to rewind your film back to its original cartridge. So if your exposure indicator shows that the final frames are near, wind your film slowly. If there is firm resistance, you will know that you have reached the end of the roll. This number can be 16, 20, or 29 exposures. Sometimes, however, an extra-long piece of film may be in the cartridge so that one or two extra frames can be exposed.

When you can wind no farther, turn the exposure counter dial *clockwise* until the *R* lines up with the red index dot.

2. Rewind the film by turning the rewind knob clockwise. You will notice that the winding knob will continue turning as long as any film remains on the take-up spool. Continue rewinding the film into the cartridge until the rewind knob turns freely without any tension. Lack of tension indicates that the film is off the winding spindle and in the casette.

3. Unlock and remove the camera back cover.

4. Pull up the rewind knob and remove the film cartridge.

5. To reload at this point, begin again by turning the winding knob until the slot in the take-up spool is in position to accept the leader of your new roll of film. Then reset the exposure counter before taking your picture.

4. Viewing the Stereo Slide

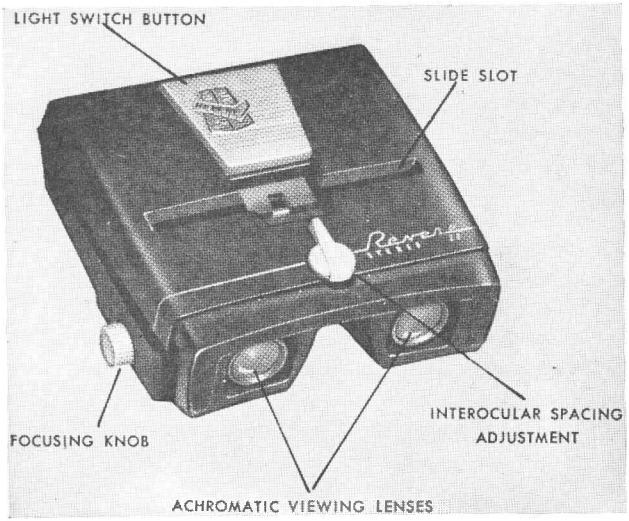
How to View Your Slides

The Revere Stereo Viewer is as important as the camera for producing a finished stereo effect that will be easy to view and also correct in its proportion to the size of the original subject.

The Revere Stereo Viewer is really a stereoscope, which, by definition, is a binocular type of optical instrument in which the height, width, and depth relief of two separate pictures are fused to appear as one view. It is important to understand that the stereoscope must be a precision instrument, carefully made, and correctly engineered to present your stereo pictures under ideal conditions.

In order to keep the stereo view of your subject in a ratio proportionate to the apparent size as our eyes see it, the focal length of the viewing lenses should closely match the focal length of the taking lenses. The 44mm lenses of your Revere Viewer are a satisfactory match to the 35mm taking lens. They are optically fine, matched, acromatic (color corrected) lenses designed to reproduce your color film with the finest color rendition possible.

The interpupillary distance (the distance between the two lenses)



The Revere Stereo 22 Viewer.

may be changed to accommodate the people who have eye-separation points other than the average 63.5 millimeters. It may be surprising to you to learn that the center-to-center distance between the eyes of most adults is not uniform. Some people may have an eye-to-eye (interpupillary) separation of 60 millimeters and some may have a separation of 70 millimeters. The Revere Stereo Viewer can be adjusted for your own specific separation by the yellow knob on top of the viewer. Both right- and left-hand focusing knobs are provided to focus the viewer whenever this adjustment must be made. These two focusing knobs make the Viewer much easier to handle.

The "On" button is large and comfortable to use, so that your fingers do not tire if one slide is viewed for a long time.

The Light Source for Viewing

Stereos should be viewed under ideal conditions of light. In former days the stereoscope had to be pointed up to the light source. This position caused physical discomfort when the viewer was held up to the ceiling lights for a considerable time. The modern Revere Stereo Viewer has its own built-in light source which, because of its uniformity and light quality, assures sharpness, brilliant color, and comfortable depth perception. It is simple to operate because the large light-switch button is easily pressed and the lighting source allows any viewing position that is not tiring. The lamp used is a blue bead No. 14 G.E., or a 2.5 volt, 0.3 ampere Westinghouse.

The built-in light source is powered by a pair of size D batteries; or for constant use, by the accessory transformer unit, Model 222, which operates on 110 volt, 60 cycle, alternating current (AC only is recommended). The viewer weighs less when the accessory transformer is used, and the possibility of battery failure at an inopportune time is completely eliminated with it.

This viewer has been engineered with great care and the whole instrument is artistically appealing as well as technically efficient. You can keep it operating continuously without trouble if you take a few simple precautions.

1. Keep the light lamp screwed in tightly. A loose lamp can cause flickering.
2. The battery contact prongs must be bent to provide tension for perfect contact.
3. Wipe the front and back of the batteries with a facial tissue to

remove any corrosive or greasy material that may form and prevent full contact between the battery and the conducting prong.

4. Always keep the Revere 33 Stereo in a box or carrying case, away from dust, heat, and humidity.

5. Always carry a spare set of lamps and batteries (unless you use the transformer unit); one never knows when either batteries and/or lamps may burn out suddenly.

6. Keep the regular white reflector dusted and clean.

The Revere Stereo 222 Viewer accepts the standard 1⅝x4-inch size slides. As soon as your slides are mounted after processing by the laboratory, you can quickly complete the cycle of taking and viewing your finished stereo. The Revere camera and viewer make stereo so easy that, if you have followed the information of the past few chapters, you will have made successful stereos without delving into the technical, mathematical, or mechanical theory involved. "The proof of the pudding is in the eating"—and your confidence in your ability to take a good stereo is in seeing it come to life successfully in your viewer.

5. Flash with Your Revere

Flash Equipment

This is the modern age of packaging. It is natural, then, to expect that our photographic sunshine (flashlamps and flashtubes) should be available in packaged, portable, convenient form. By their use, the photographer carries his light with him anywhere, at all times. The strength of these "light packages" is so great that it is possible to take color pictures under any conditions, even though color film emulsion speed is very slow and no other light source is available.

The Revere flash gun is mounted on the top of the camera in ordinary use, but a socket in the base allows mounting it on a tripod or extension arm. The gun and shutter are synchronized for class M and F lamps and strobe light.

The purpose of flash synchronization is to match the opening of the shutter at the point where the lamp is burning at its peak (brightest). To understand the process better let us first study the cycle.

Flashlamp Characteristics

To the eye, a flashlamp may seem to ignite instantaneously. But actually, a short time is required for the combustible material to heat up to the burning point. Different lamps have different periods of ignition and the duration of the peak also varies.

The Class F Lamps (SM made by General Electric Company or SF made by Sylvania Company) are fast-igniting; that is, there is a delay of only 5 milliseconds (1/200 second) before the ignition point. The flash peak itself also lasts 1/200 second. The brief total duration of the flash means that a Class F Lamp may be used at any shutter speed from 1/2 to 1/100 second and obtain an effect at any of these speeds similar to that of a shutter speed of 1/200 second.

The Class M (No. 5 General Electric, No. 25 Sylvania, or No. 5 Dura-Flash) are medium-speed igniting, with a heating delay of 20 milliseconds (1/50 second). The total duration of their flash peak is only 1/50 second. They can be synchronized at speeds up to, and including, 1/25 second and are marked in red on the shutter speed ring. If this type of lamp is synchronized at 1/5- or 1/10-second shutter speed, the 1/50-second flash duration itself would still stop many fast actions. These lamps are about 1½ stops more powerful (consult the guide numbers) than the Class F lamps.

TYPE OF LAMP	SHUTTER SPEEDS
Class "M"	T, B, 1/2, 1/5, 1/10, 1/25, only Marked in RED on Shutter Speed Ring
Class "F"	All Shutter Speeds Except 1/200
Strobe Lights (Class X)	All Shutter Speeds

Flashtubes

Flashtubes (speedlights) may be used with all shutter speeds. The flashtube evolved from the dreams of many inventors, who hoped to produce a source of strong light that would yield a number of flashes without burning itself up as does the flashlamp after one exposure. The electronic flashtube is the answer. This light-type of flash consists of a rare gas bottled under a high pressure, which glows brightly only when a high-voltage current courses through the tube. The ignition period is less than 1/1000 second and the peak of the glow is much shorter than that of the flashlamp (about 1/5000 second). However, the strength of their color guide numbers, as compared with the flashlamps, is in the low 30's. Because of this, they must be used at relatively short distances only. The newest units are quite light (about 1½ pounds) and are used with the regular house current or from an auxiliary battery pack.

Flash Shields

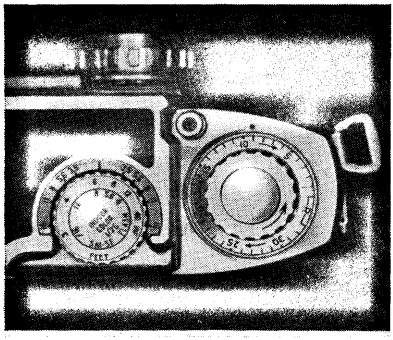
While accidental flashlamp bursting is rare indeed, a flash shield is the only certain insurance against it.

Using Flash Equipment

Taking flash pictures with your Revere is a simple matter because your sunshine is with you at all times. The shutter speed should be left at 1/25 because every flash form, whether flashlamp or flashtube is used, will synchronize positively at that setting.

Faster Synchronizing Speeds

If too slow a shutter speed is used with a strongly backlighted subject, a ghost image may appear on your film. A ghost image, or



The Revere Automatic Flash Computor is on top of the focusing wheel. It applies to SM or SF Flashlamps in a satin-matte reflector (close the iris ½ stop with polished reflectors).

double image, in this case is really a double exposure. Briefly, this may happen when a flashtube is used at 1/25 second. The first part of a ghost-image exposure is made with the flashtube and lasts the 1/1000 second. But if the subject should move rapidly during the entire 1/25 exposure, a strong backlight will record his movements during the time remaining in the 1/25 second and so produce the second exposure at the same time. Therefore, use the fastest speed on the chart to synchronize your flashlamps or flashtubes if your subject moves at very rapid speeds; or reduce the volume of backlight when ghost images must be avoided.

Use the Safe-Set Method. The beginner and the professional must make every picture count. As a positive help in adopting a sure-fire, push-button type of photography to produce a perfect picture always, the beginner should try the Safe-Set Method with the flash unit right on the camera. With this method, all variables are eliminated. Your distance, your iris, and your shutter speed are preset. All you need to do is to approach your subject, check the focus through the viewfinder, compose your subject, and as soon as the peak of expression can be anticipated or seen, release the button. You will get a perfect picture each time!

Later, your lamp can be taken off the camera for interesting light and shadow effects, but that must be left until you have first assured yourself that you can take a perfect exposure every time. It can be done. You can do it!

Stereo Flash Peculiarities

A problem especially peculiar to stereo can arise from the too-close position of the edge of the flash reflector to the camera lens. "Pink

Eye" is produced when the flash rays enter the eye and are reflected back by the pink of the blood supplying the retina. The red reflection is then magnified by the lens of the eye (acting as an optical condenser) so that the whole eye has a pink opalescent cast. Pink Eye in the subject is disconcerting to you because the eye has a dreary, dead effect. This can be prevented easily by following these few simple precautions.

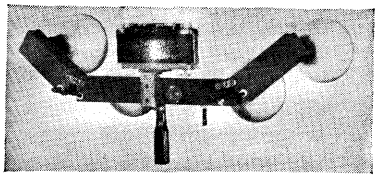
1. Maintain a high level of room light to keep the iris opening of the eye narrow (small). A narrow iris opening lessens the chance of light entering the eye, and lessens the chance of any being reflected back toward the camera.

2. Keep a bright light beside the camera and have the subject focus on it. When the eye focuses on a bright light, the iris opening is usually narrowed.

3. The subject should focus at the camera or at far distances. The lens of the human eye is thinner when focused for a far distance and so has a lesser tendency to disperse any light coming through it.

4. The reflector edge should be separated and kept apart from the camera lens according to the following proportions: ½ inch for every foot of subject distance. Thus, the reflector placement for a subject 10 feet away should be at least 10 divided by 2 (equals 5) inches away in any direction from the lens edge. Since most indoor pictures are taken in a 10-foot room, at least a 5-inch separation should be maintained.

5. If your subject cannot move or be moved, take one or more side steps to avoid having the flash in a direct frontal position to the subject. Follow these simple rules to attain superb stereo flash results.



Stereolite (Mayfair) for uniform photoflood lighting.

Guide No.			Head		Head and Shoulders		Half body		Three-quarter body			Full body					
	1½'	2'	2½'	3'	3½'	4'	5'	6'	7'	8'	9'	10'	12'	15'	20'	30'	40'
14	8	7	5.8	4.6	4	3.5	2.9	2.3	2	1.8	1.5	1.4	—	—	—	—	—
20	12.8	10	8	6.4	5.6	5	4	3.2	2.8	2.5	2.2	2	1.6	1.4	—	—	—
28	19	14	11.2	9.4	8	7	5.6	4.7	4	3.5	3.1	2.8	2.3	1.8	1.4	—	—
35	24	18	14	12	10	9	7	6	5	4.5	4	3.5	3	2.3	1.8	—	—
40	27	20	16	13.4	11.4	10	8	6.7	5.7	5	4.3	4	3.3	2.7	2	—	—
56	36	28	22	18	16	14	11	9	8	7	6	5.6	4.7	3.8	2.8	1.9	—
60	40	30	24	20	17	15	12	11.3	8.5	7.5	7	6	5	4	3	2	1.5
70	45	36	28	22.6	20	18	14	13	10	8.6	7.5	7	5.8	4.7	3.5	2.3	1.8
80	—	40	32	26	22	20	16	15	11	10	8.7	8	6.7	5.3	4	2.7	2
90	—	44	36	30	26	22	18	16.5	13	11.3	10	9	7.5	6	4.5	3	2.3
100	—	—	40	33	30	25	20	18	15	12.6	11	10	8.7	6.6	5	3.3	2.5
110	—	—	44	36	32	28	22	20	16	14	12	11	9	7.3	5.5	3.6	2.8
120	—	—	—	40	34	30	24	22	17	15	13	12	10	8	6	4	3
140	—	—	—	—	40	35	28	27	22	17	15	14	11.6	9.3	7	4.6	3.5
160	—	—	—	—	—	40	32	36	23	20	18	16	13.3	11	8	5.6	4
220	—	—	—	—	—	—	44	40	31	27	24	22	18	15	11	7.5	5.6
240	—	—	—	—	—	—	—	—	34	30	29	24	20	16	12	8	6
320	—	—	—	—	—	—	—	—	45	40	35	32	26	21	16	10.5	8
440	—	—	—	—	—	—	—	—	—	—	47	44	36	29	22	14.5	11

HOW TO USE SAFE-SET GUIDE NUMBERS

1. Consult your floodlamp, flashlamp, or flashtube guide number chart that comes with your lamp and find the recommended guide number at any speed. The author suggests a 1/25-second setting because all lamps in all classes will synchronize at this speed.

2. Check the guide number column of the Safe-Set chart for the same guide number that is listed for any particular lamp.

3. Scan across the line of the Safe-Set chart and select the four or five sizes that will be used most often. Be sure to list them in the illustrated manner. Prepare this chart on adhesive tape and fasten it to your camera in a place where it will be seen quickly and clearly.

4. Preselect your image size, set your camera controls, and walk into a perfect picture.

5. For wide-angle lenses, use nearer distances because the image sizes are smaller (a head setting for a regular lens covers a head and shoulders only for a wide angle lens).

6. For telephoto lenses use farther distance settings because the image size is larger than those taken with a normal lens (a head and shoulder setting for a normal lens covers only a head area for a telephoto lens).

7. These charts are predicated for adult sizes. For children, automatically use settings one group nearer; e.g., a head Safe-Set grouping will cover only a head and shoulders of a child.

8. This chart is applicable to color, black and white, infrared, ultraviolet, and in short, any light source that can be measured by means of a guide number.

9. If a number of lenses of different focal lengths are used, make separate charts for each lens to avoid even the remotest possibility of confusion.

Avoid Errors!

1. Check your color film to see if it is balanced to the specific color source for which it is made; e.g., daylight color film used outdoors, indoor color film balanced to its specific color temperature, indoor color film filtered to convert it to daylight use, etc.

2. When using conversion filters, choose the guide number for the new A.S.A. number resulting from the conversion. It is usually lower than the unfiltered film.

3. Compensate your exposure for filters and extension tubes.

4. Consider exposure allowances for polished, semi-matte, or matte reflectors as well as for normal, dark, and brightly lighted rooms. If a subject fills the entire frame, allowances should be made for dark, normal, and light-toned reflections and skin.

5. Half stops are made by setting the indicator approximately midway between the two marked calibrations of the iris numbers; e.g., midway between f/5.6 and f/8 indicates f/6.3.

THE RAPID f/ METHOD FOR FILL-IN COMPUTATION WITH ANY FILM

1. Determine your main light or sun light setting, e.g., f/4.5 at 1/50.
2. Your light balancing is now based on the f/4.5 setting:
   a. 1:1 ratio - The fill-in's light intensity must equal 4.5, therefore divide your f/opening into #45 if #5B, or 25B lamps are used, the result is the distance for placing the fill-in lamp, 10 feet.
   b. 1:2-1 stop less fill-in light is needed. One stop less than 4.5 is 3.5. So divide 3.5 into 45 for a 13 foot distance.
   c. 1:3-1½ stops less light compared to the f/4.5 main light is needed. f/2.8 is required so when 2.8 is divided into 45, the light, this time, is placed at 16 feet.
   d. 1:4-2 stops less fill-in or an f/2.5 equivalent. Dividing 2.5 into 45 results in an 18 foot lamp placement distance.

NEW GUIDE NUMBER CALCULATIONS FOR MULTIPLE FLASH WITH BLACK & WHITE OR COLOR FILM

If two lights are used multiply Guide Number for 1 lamp by 1.4 e.f., #45 now becomes 63
If three lights are used the Guide Number for one lamp is multiplied by 1.6 so that #45 becomes 72
If four lights are used the multiplying factor is 2 and number 45 becomes 90

Sun as the Main Light:
Color settings with Ideal conditions

1/500 - f/2
1/400 - f/2.2
1/300 - f/2.5
1/200 - f/3.5
1/100 - f/4.5
1/50 - f/6.3*
1/25 - f/9

*Recommended basic setting

Color Sun-Flash Balancing - Sun as Mainlight

If flash is removeable:
Ratio Color Fill-in with #5B, 25B at 1/50 sec.

1:1	1:2	1:3	1:4
7	10	12	14

Set flash lamp from subject at

If flash is fixed to the camera;
intensity is cut:
1/2 (2x) by 1 thin, clean white handkerchief
1/4 (4x) by 2 thin, clean white handkerchiefs
1/8 (8x) by 3 thin, clean white handkerchiefs

Sun as the Color Fill-in

Flash to subject-distance

#5B, 25B at 1/50 as mainlight	7	5	3¾	2½
Sun fills-in	1:1	1:2	1:3	1:4

N.B. Black & White Charts should be prepared separately based on the same rules.

Balance fill-in lights by
1-Change lamp distance with extension outlets.
2-Change reflector surface.
3-Change reflector size.
4-Change reflector focusing position if available.
5-Remove reflector (around 2 stop difference) for raw light effect.
6-Change lamp size.
7-Change shutter speeds to alter Effective Guide Number.
8-Change reflector position (feathering the light).
9-Use thin white handkerchief or spun glass diffusers, etc.
10-Alter shutter speeds with electronic flash because its Guide Number remains the same.
11-Bounce light from ceiling indoors, or from a cardboard reflector or wall outdoors.

6. Revere 33 Stereo Accessories

Types of Accessories

The Revere 33 Stereo is essentially so simple in construction and so easy to operate that the bare camera and flash can be used for over 90 per cent of the stereos that you will take. It is advisable for the beginner, in fact, to shy away from purchasing numerous accessories until he has mastered the basic procedures. Otherwise, he will find that many of the gadgets which he is tempted to buy will not be used more than once or twice during the year.

However, some accessories will make the camera easier to use, will help in taking the picture, or will protect its delicate parts. These may be categorized in two broad groups: convenient, and functional.

Convenient Accessories

Devices that help in picture-taking without performing a truly photographic function include:

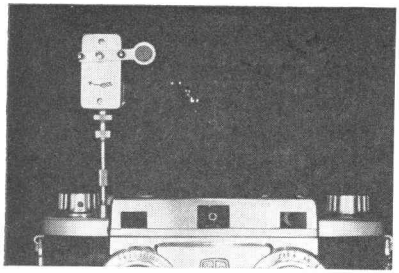
1. A carrying case to protect the camera.
2. An elevating tripod that allows a change in height without readjustment of each leg of the tripod.
3. A cable release for tripping the shutter so that vibration is minimized.
4. A self-timer that automatically trips the shutter after a set time interval.

Functional Accessories

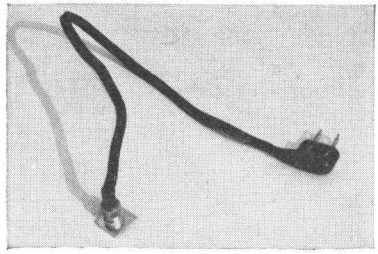
Accessories that are primarily photographic in nature because they affect the formation of the film image by evaluating the light for exposure, altering the focal length of the lenses, or by altering the nature of the light coming through the lens, include supplementary lenses, filters, and lens hood.

The functional accessories that fit on the camera may be as high as four in number. Because they may all be used at one time, the descriptions that follow here will be presented in the order of attachment so that the beginner can place them in a photographically efficient manner.

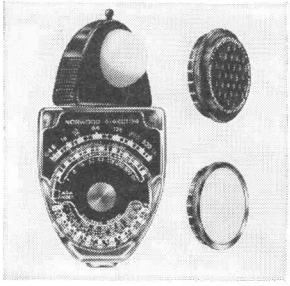
1. *The Supplementary (Close-up) Lens.* If a close-up lens is used alone for a shift method of taking close-up pictures, then the lens



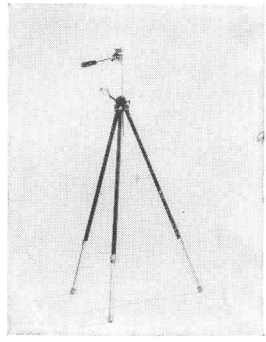
Self-timer on the Revere. Complete the family group with your presence.



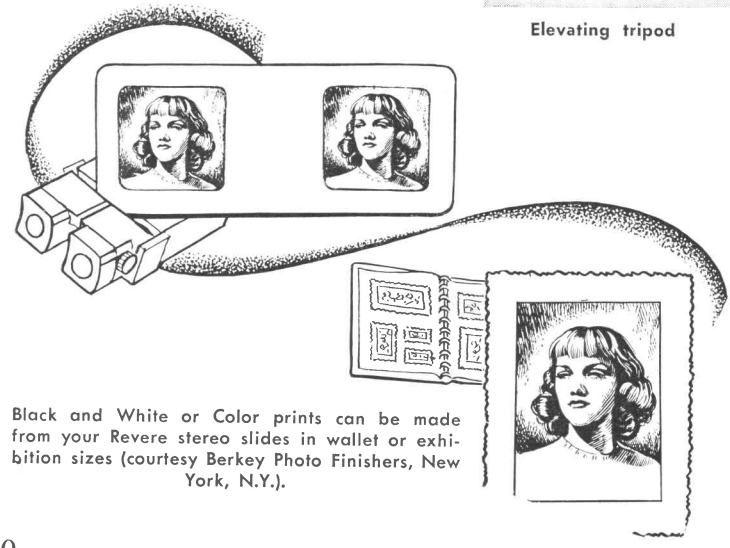
Graflex synchronizing cord for away-from-the-camera flash.



Incident-light meter



Elevating tripod



Black and White or Color prints can be made from your Revere stereo slides in wallet or exhibition sizes (courtesy Berkey Photo Finishers, New York, N.Y.).

must be of first-quality, perfectly centered and ground, and polished to the highest possible standards because any deviation or flaw will produce an undesirable prism effect. The Revere 33 Stereo requires a Series IV portrait lens that fits inside its built-in mount, or a Series V, 25mm, slip-on mount to fit around the outside of the Revere mount for holding other types of portrait lenses. The Stereo-AngleLens, a combined prism portrait close-up lens, will fit into the Series V, 25mm supplementary mount.

2. *The Filter.* A conversion, light balancing, or color deficiency filter is the next in order of attachment. This may be added over the portrait lens by means of a retaining ring and held in place by a lockring or lens hood.

3. *The Polarizing Filter.* The polarizing lens possesses the unique property of excluding all light rays other than those that vibrate at a particular angle. It is a valuable asset to the cameraman when he is photographing objects that exhibit high reflective glare.

4. *The Lens Hood.* This accessory is extremely useful in preventing light flare when rays from a light source enter the taking lens at an oblique angle. Such stray, image-degrading rays affect the tone contrast, but the use of a lens hood of correct design will eliminate them, so that the colors in the picture are purer and more highly saturated, thus assuring sharp color-tone contrast.

When all four of these attachments are used, then they must be added in the order given. If they are used in smaller groups, they must still be attached in the same arithmetical sequence, that is, 1 and 4, or 2, 3, and 4, or 1 and 3, etc.

Other Accessories

There are additional functional accessories peculiar to stereo photography, such as trick devices for making multiple exposures on one frame. The shift bar is one that is useful in making either close-ups or distance shots. A 4-inch bar is used for close-ups and an 18-inch bar for distance shots.

The "Shield 'N Vue" sleeves also complement the camera capacity for unique effects.

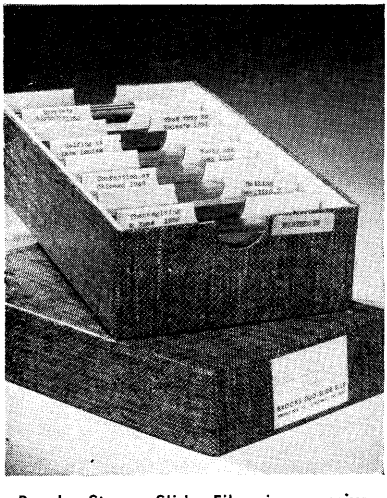
When to Use Accessories

The list of accessories can be a story without an ending because new ones are constantly being devised. Both functional and con-

venient devices are invented and improved upon so rapidly that persistent follow-up of all manufacturers' products would be necessary in order to keep up with the most recent developments.

Before you buy any new accessory, first determine whether or not it can improve upon your present method of performing a function. The improvement in your techniques should be considerable before an expenditure for a new device can be justified. Remember that, basically, your Revere Stereo 33 is the prime unit and that it will perform magnificently with or without accessories. Never load it with gadgets that may detract from its inherent picture-taking capacity.

If you have followed the Safe-Set Method faithfully, you have learned to use your Revere 33 either indoors with flash or outdoors in all kinds of weather. Taking a picture is merely a matter of mechanical routine and your Revere will do the job for you, once you have standardized your "taking" factors! But *making* a picture depends on you. It requires interlock and coordination of a number of decisions and procedures that depend upon human judgment and human skill. Once you have mastered the mechanical procedures, then you can devote your entire attention to making the picture, or in other words, using common sense to obtain the best stereo pictures made possible by the manufacturer's skill in producing a fine instrument. Don't forget—you can get perfect stereos, with or without accessories! Good luck!



Brooks Stereo Slide File—inexpensive and efficient.

Revere's Shield N' Vue protectors for cardboard mounted slides.

Photographic and Stereo Dictionary

This brief dictionary has been prepared to serve as a convenient source of reference for the new camera owner.

Aberration. Distortion in the lens.
Acid. Chemical used to stop development.
Adapter. Converting unit attached to the lens.
Alkali. Chemical used to accelerate development.
Alum. Chemical film hardener which prevents softening, reticulation, and scratching.
Anastigmat. Flat, distortionless, straight-line image.
Angle of View. Subject area seen by a lens in all directions.
Angle Shot. Picture from an unusual angle.
Anhydrous. Without water.
Aperture. Lens opening allowing image-forming rays to enter camera.
Artificial Light. Light other than sunlight.
A.S.A. American Standards Association. Systematizes materials, procedures, techniques, etc.
Auxiliary Lens. Extra lens attachment to change the function of the regular camera lens.
B (Bulb). At this setting, the shutter will remain open as long as pressure is maintained on the shutter release. Shutter closes when pressure is removed.
Between-the-Lens Shutter. Blades or leaves of the shutter widen to open, then completely close to make an exposure. Located between the lens elements.
Blowup. An enlargement.
Bounce Light. Light method using walls and ceilings to reflect light.
Brightness Range. Permissible light-to-dark difference possible for subject, negative, or positive.
Bulb Ejector. Device for removing hot flashlamps.
Bulb Exposure. Picture taken with the shutter set at **B.**
Bulk Film Winder. Economical device for winding your own individual cartridges from larger rolls.
Cable Release. Wire, shutter-releasing device which enables you to take pictures without touching the camera. Cable releases may be used five or more feet from the camera.
Camera. Light-tight box, having sensitive film on the inside and a light-admitting device (lens) at the other end.
Camera, Planar. Single-lens camera.
Camera, Stereoscopic. Double camera, lenses set side by side with a separation of 65 or 70mm. Made so that the apertures and shutters operate simultaneously.
Cartridge, Standard. Regular 35mm daylight-loading film-holder which may be purchased anywhere.
Chroma. Purity of a color mixed with gray.
Circle of Confusion. Area in which two dots appear as one. Two separated dots will appear as one when separated by 1/100 inch at a 10-inch reading distance.
Close-Up. Picture taken closer than 8 feet from subject.
Coated Lens. Antireflection deposit on lens surface to permit more light to pass.
Color Blind. Film sensitive only to blue or violet light.
Color Contrast. Distinct separation of different colors.
Color Corrected. Optically balanced to assure similar sharpness of all colors.
Color Harmony. Combination of colors producing a pleasing effect.
Color Sensitivity. Varying color response of different films.
Color Temperature. The degrees K refer to the comparative color changes that occur when a black body (iron) is heated. A low number indicates a more reddish color; a higher number, a bluer shade. Most important for natural color film.
Color Temperature Meter. Device which measures color temperature, establishes color balance.
Complementary Colors. Any two combined colors other than the primary.
Composition. Orderly arrangement of a picture to produce the most pleasing effect.
Condenser. Light-concentrating lens.
Contrast. Comparison of light to dark.
Contrasty. Abrupt difference of light-to-dark tones.
Cropping. Trimming a picture for the most effective composition.
Cutter. Special slicer for cutting film or print with clean or deckled (wavy) edges.
Daylight Tank. Special developing tank which permits negative processing in full light.
Definition. Sharpness.
Delayed Action. Automatic shutter-release mechanism operating after a predetermined interval without human effort. Permits you to photograph yourself.
Densitometer. Measures thickness of exposed and developed film silver deposit.
Depth of Field. Area of satisfactory image sharpness. Distances at different apertures are usually supplied in table form.
Developer. Chemical that blackens only exposed portions of film.
Development. Complete process of developing, shortstopping, and fixing exposed film.
Diffusion. Light that is scattered. Reduces sharpness of image.
Double Exposure. Taking two pictures on one negative. May be accidental, or intentional for special effects.

Easel. Paper-holding device for enlarging.
Elevator Tripod. Convenient device for lowering or raising a tripod head without changing the length of the tripod legs.
Emulsion. Gelatin or resin carrier of sensitized silver particles.
Emulsion Speed. Reaction rate of different films to light.
Enlarger. Photo-optical device to produce large pictures from small negatives.
Enlargement. Large print made from a smaller negative.
Exposure. Activation of sensitive silver in the film by light. Admission of light into the camera through the lens.
Exposure Counter. Numbering device for counting the exposures in the order that they are made.
Exposure Guide. Chart suggesting aperture and shutter settings for differing conditions of light and subject.
Exposure Latitude. Film ability to be over- or underexposed and still yield an excellent picture.
Exposure Meter. Light intensity measuring device to indicate correct aperture and shutter settings.
Extension Flash. Coordinated multiple flash from different locations used to light a picture with greater balance.
Feathering. Using only the edge portions of a light in order to avoid a hot spot.
Fill-in Light. Diffused weak light usually placed at the camera position to prevent too dark shadows.
Filter. A colored glass that fits over lens and separates white light. May admit certain colors (transmission) while preventing other colors from coming through (absorption).
Filter, Gelatin. Nonpermanent filter usually used for experimental purposes.
Filter, Laminated. Gelatin filter cemented between two pieces of glass.
Filter, Neutral Density. Increases exposure without altering color values.
Filter, Polarizing. Transmits light rays of only certain angles. Minimizes glare.
Filter Factor. Additional exposure necessary because all filters retard some light.
Fine-Grain. Controlled small grain needed to produce negatives suitable for huge enlargements.
Fixing. Removing unexposed and undeveloped silver salts from an emulsion.
Fixed Focus. Standard camera distance-scale setting with a narrow aperture which produces great depth of field and lessens the need for accurate focus. Box cameras are fixed focus.
Flashgun. Combined battery and flashlamp holder.
Flashlamp. Powerful single-use light source. Flash duration generally 1/50 second.
Flashtube. Powerful multiple-use light source. Flash duration 1/5000 second.
Flat. Opposite of contrasty; showing little gradation of tone.
Focal Length. The infinity (far distance) lens distance position from film.
Focal Plane Shutter. Light-admitting curtain similar to a window shade, with a slit of varying size for different time intervals of exposure.
Focusing. Securing camera image sharpness for the lens at different subject distances by moving the lens forward or backward.
Focusing Scale. Measurement chart that shows the required lens-from-film distance for different subject distances.
Focal Frame. Convenient close-up camera device that eliminates the need for focusing or framing the subject.
Grain. Granular image breakdown due to optical or silver clumps formed by improper development.
Gradation. Tone separation.
Glare. Unwanted concentrations of light; hot spots.
Guide Number. Flashlamp or flashtube reference number used to simplify the calculation of the proper aperture for different subject distances.
Hi-Lo Switch. Electrical device that permits focusing with dim lights and picture-taking with brightened lights.
Hardener. Toughens film or paper.
Hot Spot. Undesirable concentration of light which overexposes subject at the point of reflection.
Hyperfocal Distance. Related focusing scale and aperture setting at which everything is in focus from half the set distance to infinity.
Hypo. Sodium thiosulfate, used to dissolve undeveloped emulsion on the film.
Illumination. Light necessary for photography. No illumination, no picture.
Iris. Variable lens opening that may be adjusted to different sizes.
Jig. Holding device.
Kelvin (K°). Visual comparison temperature number of a heated body.
Latitude. Permissible variation in exposure.
Leaf. One blade of a between-the-lens shutter.
Lens. Light-gathering system, usually of glass.
Lens Cap. Lens protective covering.
Lens Hood, Lens Shade. A light shield that prevents stray reflected light from entering the lens.
Lens Speed, f/ Number. Relationship of lens-opening to film-distance.
Mask. Shield; outline; cover.
Mask, Border. Uniform artistic outline around film or print.
Main Light. Predominating light.
Merger. Indistinct separation of subject or shades.
Microfilmer. Convenient space-saving device

for reproducing documents on 35mm film strips.

Midget Lamp Adapter. Device permitting the use of a small bayonet flashlamp in a standard size socket.

Newton Rings. Irregular target-type spots resulting from imperfect mounting.

Overexposure. Too much light admitted for an exposure. Distorts tone values.

Panchromatic. Black-and-white film sensitive to all colors.

Parallax. Viewpoint difference of camera lens and viewfinder.

Peak-of-Action. Apex, height of action.

Peak-of-Flash. Broad plateau portion of the flashglow which makes flash synchronization possible.

Photoelectricity. Electrical current generated when light strikes certain metals (selenium).

Photofloods. Incandescent lamps that burn brighter than normal because of overvoltage.

Photomicrograph. Picture taken by a camera through a microscope.

Planar. Single lens.

Rangefinder. Distance-measuring device; split-image or superimposed.

Rangefinder, Coupled. Simultaneously measures the distance and correctly moves the lens focus into position.

Reading. Estimate of an exposure by means of a photoelectric meter.

Reflector. Device for directing light rays back to an area. Increases lamp efficiency.

Reflex. Camera with image focused through a lens and reflected by a mirror to a ground-glass.

Retaining Ring. Holding ring that keeps filter in filter adapter.

Reticulation. Uneven wrinkling of the emulsion due to uneven temperature in development.

Retouching. Pencil or brushwork on a negative or positive to improve the picture.

Reversal. Process that produces direct positives without a negative.

Rewind Knob. Key or lever to wind film back into a cartridge.

Safety-Zone Focusing. Setting the distance scale at 18 feet and aperture at f/8. Large subject areas are in focus at this setting.

Set-Screw. Screw friction or mechanical device to limit the movement of mechanical parts.

Shortstop. Solution that halts development.

Shutter. Device for governing the time interval that a lens remains open, like a water faucet that opens and closes.

Shutter Release. Device for opening and closing a shutter.

Silhouette. Subject is dark and outlined against the light background. Made by overexposing the background while underexposing the foreground.

Single-Lens Reflex. Reflex that focuses by the same lens that takes the picture.

Slides. Mounted transparencies.

Solenoid. Electromagnetic shutter-tripping device used to synchronize flashlamps and flashtubes.

Speedlight. A lamp with an intense flash of 1/5000-second duration. Also called electronic, or speed flash.

Spotting. Minimizing or obliterating scratches, spots, and emulsion imperfections on the negative or positive.

Spotlight. Special type of point-source light that produces straight-line rays. Used for crispness, contrast, and sharp outline.

Stop. Opening; full 100 per cent difference in light aperture; full opening of the iris number; from f/4 to f/5.6 is one stop.

Strobe. Speedlight.

Supplementary Lens. An additional lens placed over the regular camera lens and used to alter focal length. Rigid cameras (nonbellows) usually use the positive type for close-ups.

Synchronizer. Mechanical or electrical device used to coordinate the opening of the shutter with the peak-of-flash.

Telephoto Lens. Lens that produces an enlarged image as compared to the size produced with the regular lens; both pictures from the same camera position.

Texture. Detail revealing; 90 degree angle of light for maximum effect.

Timer. Measures hours, minutes, or seconds at regular intervals; may be audible when used for enlarging.

Time Exposure, T. Long exposure, requiring set-screw cable release, or **T** setting on shutter.

Triangulation. Subject-distance measurement by observation from two points of view. Principle of rangefinder operation.

Tripping. Releasing the shutter.

Tripod. Sturdy, vibrationless camera support.

Transparency. Film intended to be viewed by transmitted light.

Twin-Lens Reflex. Double-camera type, with the top dummy camera used only for focusing.

Underexposure. Insufficent light admitted for a good picture.

Value, Color. Relative brilliance (lighter or darker).

Viewfinder. Optical device to outline the subject area as seen by the lens.

Vignette. Picture with a different border. Only the desired area is sharp.

Wide-Angle Lens. Has a greater angle-of-view than the normal prime lens.

Winding Knob. Handle, lever, or key to move film forward to the next exposure.

Stereo Terms

Accommodation. Ability of the eye to focus at different subject distances.

Aluminum Screen. Screen painted with aluminum paint. Maintains polarization and makes large-scale stereo projection possible.

Anaglyph. Red and green combined single stereogram. When separate red- and green-colored gelatin lenses are worn over the eyes, depth perception is possible.

Binocular Vision. Vision involving coordinated view of two slightly different scenes seen by each eye.

Brewster. The lenticular stereoscope as contrasted with the Wheatstone mirror-type used for large X-rays.

Convergence. Turning inward of the eyes as one approaches a subject.

Cyclops. Single, centrally located stereo viewfinder.

Depth Perception. Ability to see three dimensions. Some people may have binocular vision but are unable to see depth.

Extended Base. Pictures taken with more than the normal 65mm interocular separation. An extended base is used for long-distance stereo (hyper).

Free-Vision Stereo. Artificial three-dimensional device to produce stereo without the use of a stereoscope.

Fusing. Combining and blending two stereo images so that they appear as one and have depth.

Homologous Points. Similar subject points on each film of a stereo pair.

Hyper-Stereo. Long-distance stereo photography.

Interocular. Separation distance between two lenses of a stereo camera when taking a stereo pair. Also eye-lens separation of the stereoscope (viewer).

Inversion. Image reversal so that the right side of the body faces left. Not the same as pseudoscopic stereo.

Lenticular Viewer. Stereo-viewer with positive convex lenses, as differentiated from a prismatic or mirror type.

Mask, Stereo. Holding and framing device for stereo positives. Position of the mask determines the distance setting in space of the "window" effect.

Merger, Stereo. Regular planar merger (indistinct image separation) is, generally, not possible with stereo. Mergers may take place at infinity distances where triangulation ends and there is no depth perception.

Mounting Jig. Device for properly holding the film and mask for precise mounting.

One-Fiftieth Rule. Calculation of the interocular separation by dividing lens-to-subject distance by 50. The resulting number is the separation spacing of the two lenses.

Optical Transposition. Correction of the right and left view by optical means without cutting the roll of film.

Out-of-Horizontal. Greater than normal spread of two homologous (similar) points of an image of a stereo pair. When the separation is greater than 65mm, the eyes cannot both turn outward, so that fusion (viewing) is impossible.

Prismatic Viewer. Use of prisms permits 85-mm homologous point subject positives with a 65mm principle, prism point, eye separation.

Pseudo-Stereo. False stereo; stereo-like effect.

Pseudoscopic Stereo. Untransposed stereo; right eye sees left view and vice versa. Result shows foreground and background reversed. Confusing at first; may be difficult to detect.

Reduced Base. Stereo taken with less than a 65mm lens separation.

Relief, Stereo. Depth in stereo views.

Rotating Stage. Device to permit subject rotation between exposures, while maintaining perfect horizontal and vertical alignment.

Shift Bar. Device for shifting the camera between exposures. Used for hyper- or hypo-stereo.

Stereo-Base. Lens-separating distance between the two exposures of a stereo pair. Normally used with a 65mm to 70mm interocular.

Stereo-Projection. Direct viewing by means of a photo-optical device that permits many people to see stereo at the same time. Polarization is the most popular method.

Stereo-Reflector. Multiple-mirror reflecting device (Stereo-tach) that permits the taking of two separate views with a 65mm separation on one film frame. Requires a special viewer, or may be cut apart for mounting on a mask.

Stereogram. Mounted stereo ready for viewing.

Stereoscope. Stereo viewer.

Table-Viewer, Stereo. Small-size stereo projector, specifically designed for table viewing without the need of a darkened room.

Tilting Stage. Special microscope stage used to hold microscopic slides and angle them between exposures.

Toe-in. Inward movement of the eyes (convergence).

Transposing. The correct realignment of the right and left stereo view for its specific eye. Stereo must be changed from the order that the camera produces to prevent pseudoscopic stereo.

Twister. Stereo positive which is improperly aligned from the horizontal and vertical, and which rotates in addition. Generally unviewable.

Vectograph. Single-sheet, direct vision stereogram. Must be viewed directly with polarizing glasses, or by projection on an aluminum screen.

Wheatstone. Angled-mirror viewing device that permits the use of large-size stereos.

Window-Effect. Space placement of a window on a stereo at any desired distance position by definite mask cutting.

X-Ray Stereo. Produced by shifting the X-ray tube between two separate exposures on two pieces of film. When very large, requires a Wheatstone viewer. May be copied to a smaller size for viewing.

14. Mounting and Binding Slides

When to Mount Your Own Slides

Mounting a slide means that the two separate frames are cut, transposed, and then placed and masked for comfortable, relaxed viewing.

If you are interested only in using and viewing paper-mounted nonpermanent slides, then you should purchase Kodachrome No. 335 outdoor, or 335A indoor film, because its price includes factory mounting. This film is first processed and then mounted by Eastman Kodak. There are countless Revere owners who do just that and enjoy their camera thoroughly without a further worry in the world.

However, if a more permanent slide is desired, have your film mounted in glass (if you contemplate projection at any time), or if you wish to get the personal enjoyment of doing everything yourself, then it is easy to learn the complete mounting technique to get the most out of stereo. Previously, mounting of stereos was a difficult procedure that discouraged most novices in the stereo art. It was most discouraging to have the results of the finest cameras and viewers and careful taking techniques completely lost because of poor mounting. In fact, sloppy mounting often produced such viewing fatigue that generally everyone lost complete interest in stereo. However, stereo mounting has been made so logically routine that it becomes a truly simple matter. From the first roll, beginners now are able to duplicate the results of masters who formerly had to perfect their art after many years of study.

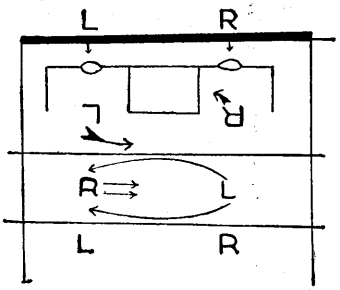
The Mounting System

The basic "must" units which have simplified and standardized stereo mounting are the film cutter, the sorting box, and the mounting mask.

The Cutter

The cutter must be a precision instrument designed specifically for cutting each film frame with a very high degree of uniformity. Once the cutter is aligned for size, each frame dimension will be duplicated ad infinitum. Since all mounting methods depend on the dimensional uniformity of the individual frames; this is especially true for projec-

MOUNTING



Reason for transposing:

a) Subject (Left and Right View).

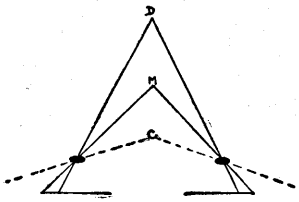
b) The camera lens reversal turns your view upside down.

c) Rotating the film in the direction of the arrows displaces each position. So, the film is cut and corrected.

d) Film image now duplicates the subject.

N. B. The Realist Sorting Box transposes automatically.

CLOSE-UPS



D—Distance.

M—Middle distances.

C—Close-ups.

Close distances appear on the edge of the film or if too close, not at all. To bring the subject onto your film for easy viewing, the camera may be shifted between exposures or used with prism-portrait lenses.

The Presto-Stereo System of cutting and mounting slides.

tion because of the fine tolerances that are needed. Only a well-designed cutter (Presto-Stereo, Videon Co., and David White Co.) will assure the exact duplication of frame size and the high degree of needed parallelism of your film margins.

Sorting Box

The film sorting box was designed both to hold your cut frames and to transpose your film automatically (page 117). Since the frames cannot be used in the same sequence as they appear on your film, the sorting box is the only rapid means to form your transpositions without becoming involved in mental gymnastics. The sorting box can be used only if your film is cut in a correct order. Your film will be cut in the proper sequence if you hold it so that the images are upside down and the curl is away from you. Start cutting the right-hand end

first and place each frame in the marked compartments (1L-X-2L-3L-2R, etc.) of the sorting box. Afterwards, when the film is mounted with the duller, emulsion side up, and the top of the subject facing away from you, you are ready to immediately view the slide when the mask or holder is turned so that the shiny side of the film faces you.

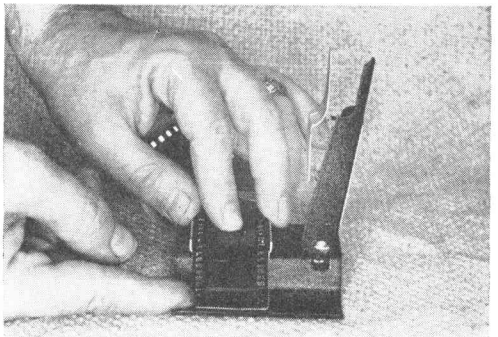
The Mask or Film Holder

1. The separation of your homologous infinity points (center to center) must never be greater than 63.5mm (2.496 inches). In separating your infinity points at 63.5mm, you are only duplicating the center-to-center distance separation of most eyes.

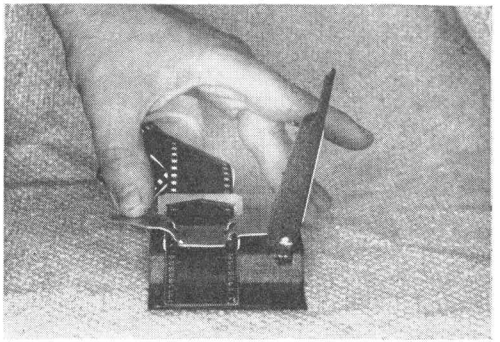
2. The need for perfect horizontal and vertical alignment of your camera for picture-taking has been stressed. If your easily recognized horizontals or verticals are incorrect, little can be done to correct them in mounting. In projection they may be harmful and can cause difficulty because people may turn their heads to see them correctly and so lose the polarization effect of their viewing glasses. Both frames must be parallel to each other vertically and horizontally. The Presto-Stereo system aligns the frames in a unique manner which is rapid, accurate, and above all, really simple.

3. With a stereo viewer, you are looking through a window frame into the world. By careful mask cutting, you can place this window frame in space at any position, e.g., 2½ feet, 4 feet, or 7 feet. If you take a subject that was photographed at 2½ feet and place it in a mask which has the frame set at 7 feet, your effect will be as interesting (temporarily only) as if the subject were standing in front of the window. This is not recommended as a standard procedure because you soon become acutely aware of the window position in viewing. Any effect which detracts from the stereo result by producing something that competes for your attention should be avoided.

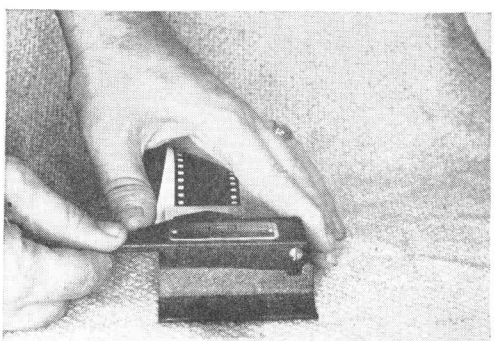
If your near subjects produce a too violent perspective and a special close-up mask is unavailable, it is possible to cut a paper mask in half, change the spacing by moving the halves 1 or 2 millimeters apart and then remount each half at the new separation. If this is done, be certain that your background is not more than two or three times the lens-to-subject distance. By cutting and separating the masks, you will bring a background to the 63.5mm limitation, while the foreground will still view comfortably. This, in fact, is the basis for the special projection mounts (Perma-Mount, Emde, Presto-



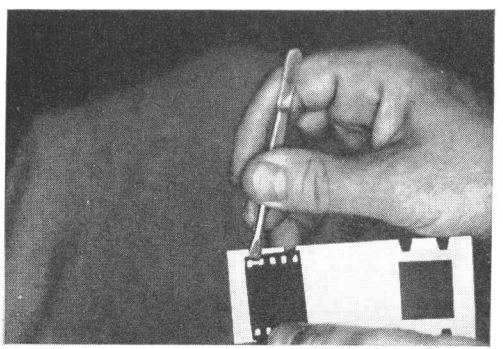
Film is engaged by the sprocket teeth.



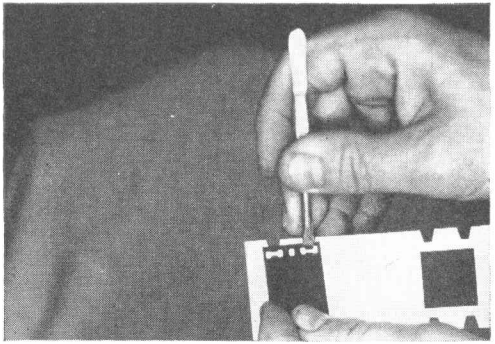
Clamp holds film.



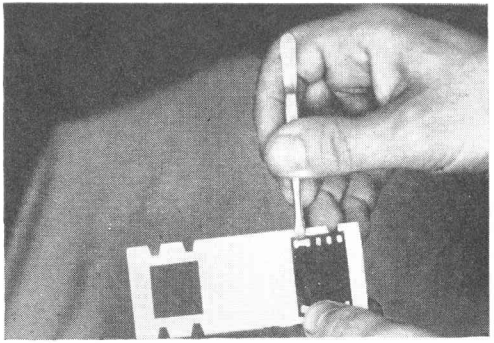
Knife edge cuts film and outside sprocket bars at the same time.



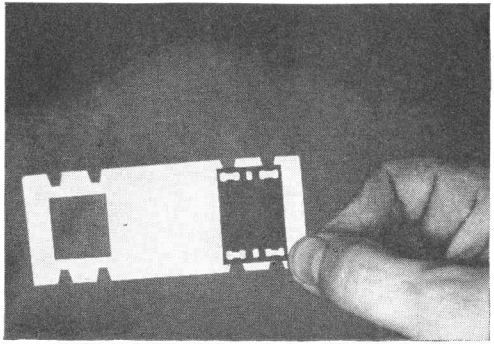
One cut bar is slipped into the groove of the mask.



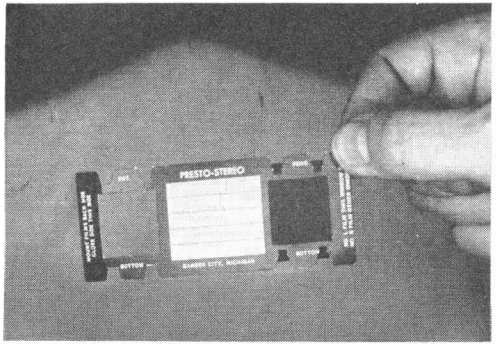
The second bar secures one side.



The other side is started.



The second side is finished.



The film is secure and cannot be moved.

Stereo, etc.) which have their center-to-center distance moved apart to compensate for the near-distance subjects that would otherwise be too close together when projected.

The window effect can be brought nearer by masking the outer edges of both frames. For ultraclose-ups, it may be necessary to mask as much as 7mm from the outside edge to bring your window so that it will appear to be at 10 inches.

4. *Cleanliness.* Since the Revere viewer magnifies your film approximately five times, all dust, grit, or dirt must be avoided because this, too, is enlarged. To clean the glass, use either trisodium phosphate, Calgon, or Oakite for washing; then rinse with clean water and dry with a diaper or some other lintless cloth. Your film, under no circumstances, must ever be wetted, washed, or rinsed. Any attempt to do so will scratch and spoil it. Surface dust can be physically removed with a soft camel's hair brush, the effect of which can be additionally enhanced by the use of Polonium to dissipate static charges. The Static Master is such a brush and it sweeps the particles from the film surface, leaving an electric charge which will further repel any more dust particles from settling on the film. In addition to a brush, keep a towel on the table so that you can dab-dry your fingers at any time that you feel perspiration forming.

Mounting Hints

Film curl may be avoided by hanging your film with a leaded weight to straighten it after it has been received from the processing laboratory. It may also be removed by rolling the film emulsion (dull) side out for two or three hours. Film curl may cause the film to buckle with a force so strong that it may separate some of the mounts.

Precision Mounting for Projection

Most regular mounting kits produce slides that are satisfactory for ordinary hand-viewing. If a paper-mask slide is glass-covered and bound with binding tape (Rol-Fold Binder recommended), the bottoms of the glass edges must be perfectly parallel. Unless this is done, one side will be higher than the other and your verticals will be twisted when viewed or projected.

Projection, however, requires a far greater accuracy of image separation when both frames are mounted on a mask. These optical con-

siderations confronted us for the first time when the science of stereo projection was developed for mass duplication and use of the slides. Then special projection mounts were developed to make stereo *projection* easy, automatically accurate, and an everyday routine procedure, rather than a secretive, selective, and rarely practiced handicraft.

A slide mounted accurately for projection is equally valuable for hand-viewing. The Presto-Stereo Mount, Emde and Perma-Mount, some of the products especially designed for stereo projection, are available in three different models, each of which differs in the separation of the homologous (similar, duplicate) points on each frame and also has different sized openings for placing the window effect at varied distances. The difference in the separation of the homologous points readily permits relaxed viewing of all slides regardless of whether they are regular, near, or close-up subjects, and regardless of whether they are intermixed or in order. This system, if carried to its logical conclusion, will completely eliminate the need of any projector adjustment, once the first slide has been focused and the image overlap set.

Glass must be used for stereo projection. Only glass slides will always maintain correct polarization angles. Acetate or vinylite slide protective strips are definitely *not* recommended because they absorb light, are often totally unreliable for projection polarization, or cause Newton rings. Glass has proved to be the ideal binding media and there is no known, acceptable substitute for it. Although this statement may sound dogmatic, it remains true until proved otherwise.

Labeling and Identifying

When your stereos have been mounted, one final item remains, labeling and identifying. Get a stock of pressure sensitive labels (Dennison's are excellent) and record on them any pertinent information that may be forgotten when a lecture is being delivered. An added touch of personal elegance can be secured by having labels printed with your name. To easily separate different subjects, however, work out a code, using a piece of Scotch tape of different color on the top edge of your slide to differentiate subjects. For example, all green-marked slides could indicate pictorial; all red-marked slides, human interest, etc.

Since stereo slides represent a great deal of unrecoverable effort and expense, it is only natural that you should care for them in pro-

portion to their great value. Use a labeled wooden or metal slide box to file, cover, and protect your slides from dust and light. Always keep the file box away from heat or humidity because these twin destroyers will always manage to harm your slides in some manner. Pack them in a foam rubber envelope so that they will be protected from shock and breakage.